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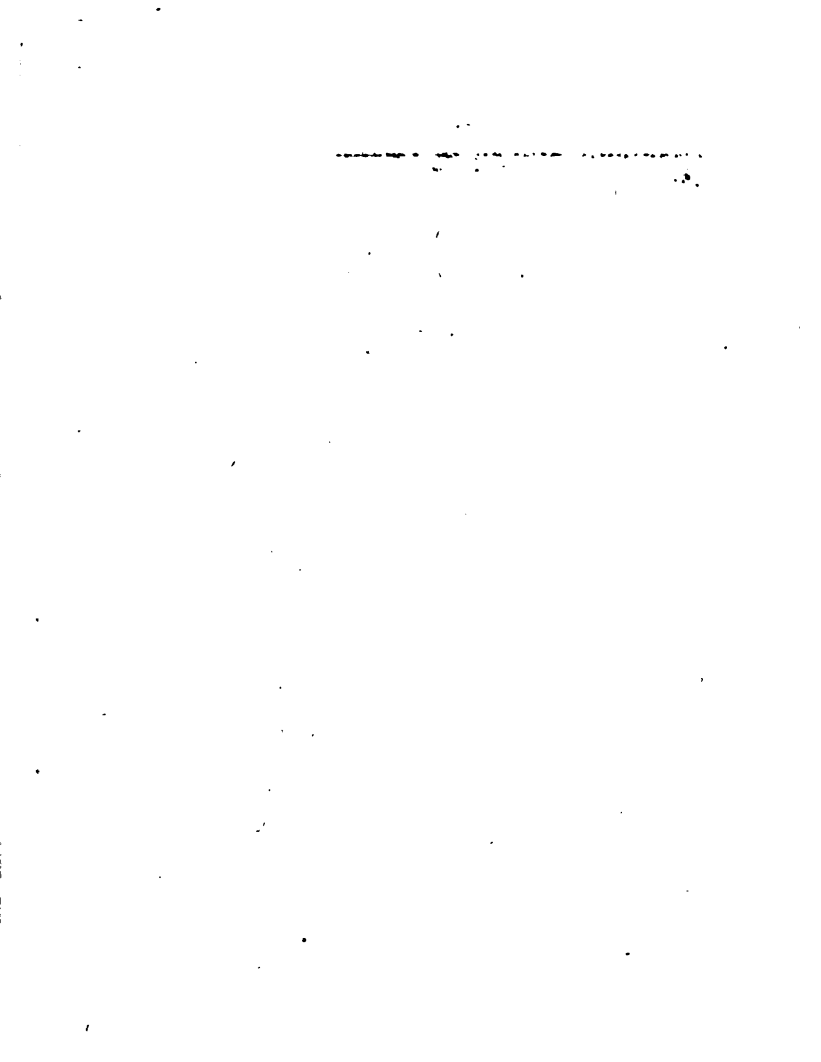
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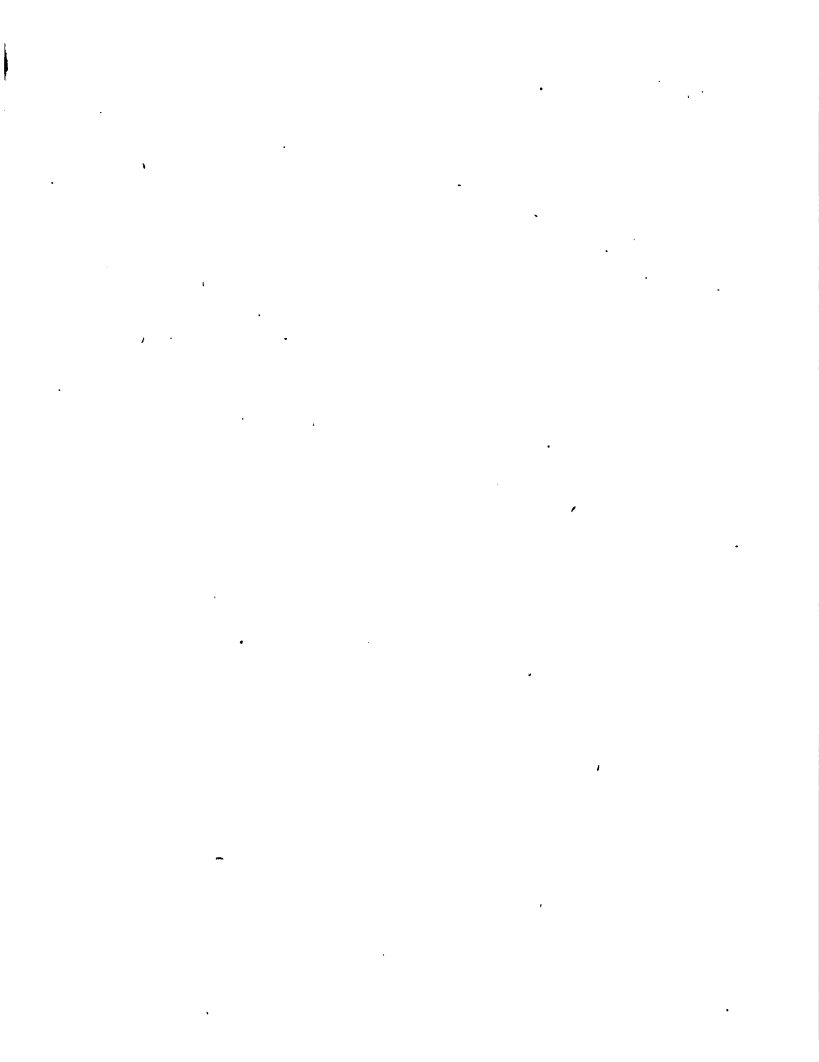
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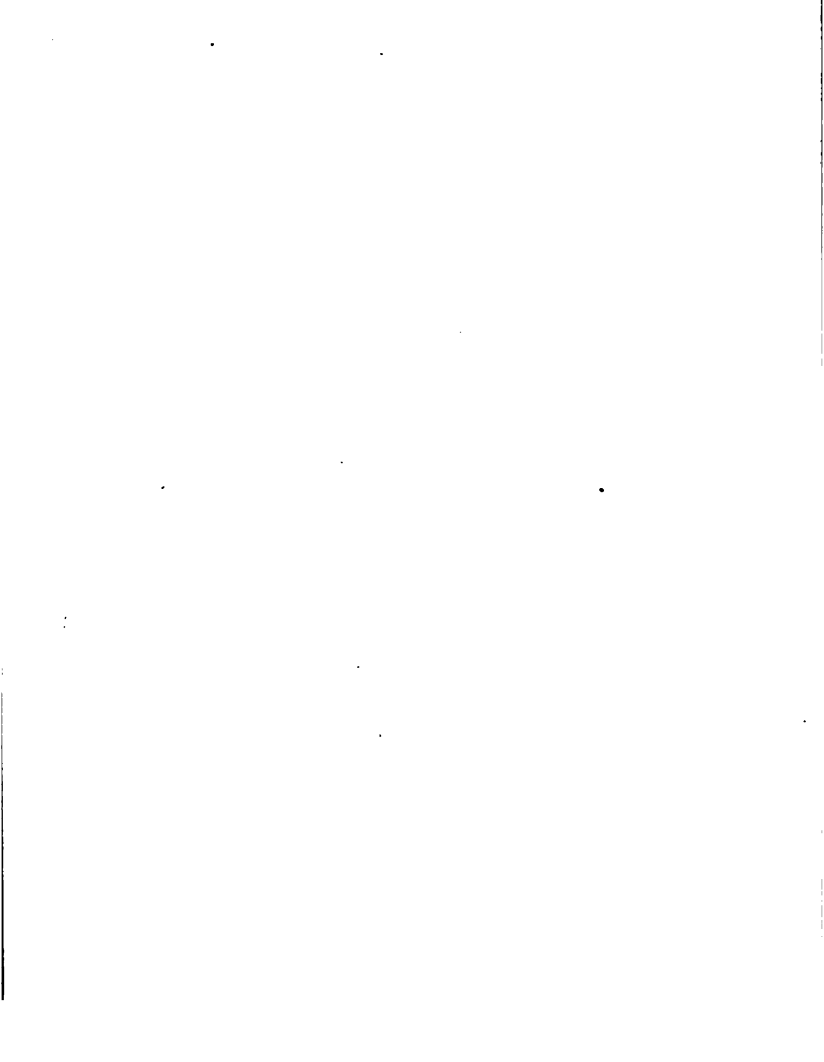
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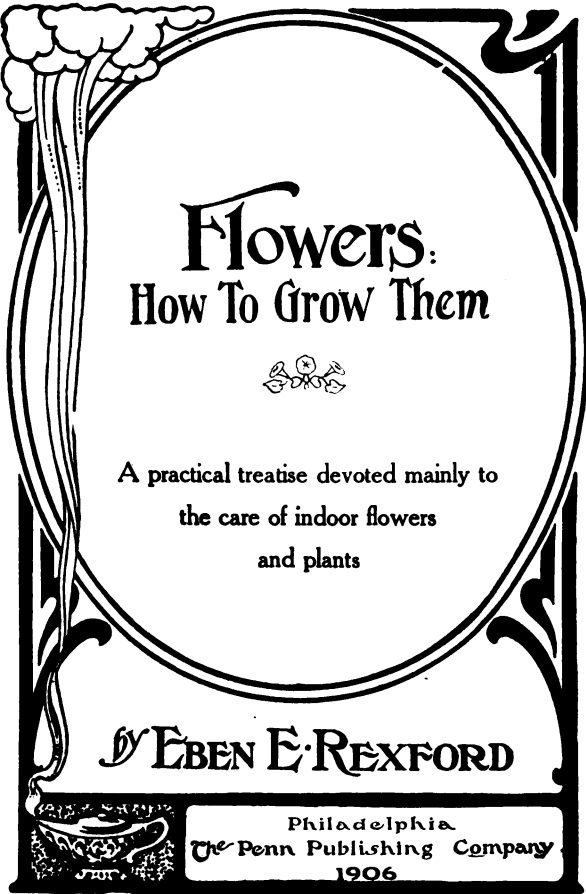












Flowers:

How To Grow Them



A practical treatise devoted mainly to
the care of indoor flowers
and plants

By EBEN E. REXFORD



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INTRODUCTION

A WORD WITH THE AMATEUR FLORIST

IN order to grow flowers well—and the true lover of flowers will not be satisfied to grow them in any other way—one must understand their habits and requirements. Unless these are understood the cultivation of flowers will be largely experimental in its nature, and no one will feel confident of doing the right thing in the right way at the right time. The experiment may prove successful, but in many instances it will prove to be a failure. It is therefore desirable that the beginner should understand certain general principles upon which successful floriculture is based, and it is the object of this little book to teach these principles in a concise, common-sense, practical manner.

Much of the information necessary for the successful growing of flowers must come from a study of the plants grown. This cannot be taught by books. It is the result of personal observation and experience. The person who has the best plants is the one who gives them most attention. I do not mean

by this the person who works among them the most, but the one who studies their peculiarities and knows just the kind of treatment each plant needs. Such a person goes to work intelligently, and his work tells, because it is the result of thought and good judgment. One knows, when starting a plant, just what to do to develop it fully, because he understands it as he understands one of his own children. The thoughtless amateur will at the outset attempt to grow all plants after the same general plan, but after a little he will see that plants differ in their natures quite as much as a family of children, and by and by he will see that it is necessary to vary and modify any general rules that may be laid down, and suit the treatment to the plant rather than to oblige all plants to respond to a particular kind of treatment. It may seem to the amateur florist that it is a great undertaking to do this, but it is not so to the true lover of flowers. There is a pleasure in watching one's plants grow and develop that makes the work delightful, and almost unconsciously one acquires the knowledge necessary to make a successful florist.

The amateur florist, as a general thing, is very enthusiastic at the start, and almost always attempts more than he is well able to carry through. He is not content to begin in a small way and enlarge his

garden or his window collection as the knowledge of what is needed grows. But this is precisely what should be done. Begin in a modest fashion, with a few plants of easy culture. By the time you have learned how to grow these well you will feel able to undertake the culture of others not quite as easily grown, and in this way you go on, by easy stages, until you understand enough about most plants adapted to general cultivation to warrant you in attempting to grow them. Be content to go slowly at first, like the child who must master the alphabet before he is equal to the demands of the first reader. Learn the general principles well, and the rest will come in such an easy way that you will hardly realize how it came. And be content, also, to begin with plants which are not very exacting in the way of treatment required. Select such kinds as seem to grow well with most cultivators, and try to grow them better than your neighbor does. A very common plant, well grown, is vastly more satisfactory than a rarer plant poorly grown. Quality should be considered as more important than quantity, or anything else connected with your plants. Aim to get out of any plant you grow all there is in it. Develop fully all its possibilities, and you will have a specimen to be proud of, no matter how common it may be.

And be thorough with your work. When you have learned what should be done, aim always to do that work well. Slipshod work among plants results in plants that always have a slipshod appearance. They show the neglect of their owner. Unless you love plants well enough to give them the best of care, do not attempt to grow them.

FLOWERS

CHAPTER I

SOIL FOR POT PLANTS—HINTS ABOUT POTTING AND REPOTTING

MANY amateur florists labor under the impression that almost any soil will grow plants well. While it is true that most plants will grow in most soils, it is also true that, to get the best results, you must adapt the soil to the plant. In other words, after learning what kind of soil a plant does best in, aim to give it that soil if possible. If you are unable to find it at hand, manufacture it by combining other soils, or elements of soils. This can easily be done in such a manner as to meet the requirements of most plants. If your soil is rather heavy, with more clay than loam in it, you can make it light and friable by adding sand. The kind of sand used should be coarse and sharp. The quantity needed can be determined only by experiment. Mix some with

the soil, then take it up in the hand and squeeze it firmly together. If, when the pressure is relaxed, the soil crumbles and falls apart, or shows a tendency to do so, it is safe to conclude that you have used enough sand, and no more need be added.

Such a soil will answer well as the basis of a compost for nearly all strong-rooted plants. Plants having finer roots—roots of the fibrous sort—will do better in a soil containing more loam than clay, and possibly leaf mold might suit them still better than loam. This depends largely on the nature of the plant, and is a matter to be decided by practical tests rather than by any instruction that can be given here. Many kinds of plants, like the fuchsia, the gloxinia, and the begonia, like a soil composed largely of leaf mold, because it is made up chiefly of vegetable matter.

If leaf mold is not obtainable, a most excellent substitute for it is found in the soil taken from old sods. Cut the sod with a sharp spade, and turn it over. Examine it, and you will find that immediately below the grass growing on its surface it is full of very fine, hair-like roots. Shave off all that part of it containing these roots, and use it in place of the leaf mold, which can only be found in woods where old leaves have drifted in hollows, or about the roots of trees, where they have lain until thor-

oughly decomposed, giving a soil very fine and mellow, black in color, and rich in fertilizing elements. The substitute advised will be found almost as good in every way, if enough is used, as the roots of the grass yield a vegetable matter quite similar in richness to that from decayed leaves. Whenever you are advised to use leaf mold, and cannot get it, use grass-root soil instead, and your plants will hardly know the difference. With either of these soils some sand should be used, to keep them open and porous. Not as much will be required as where clay or loam form the basis of the compost, because they are somewhat spongy, and do not pack down and become hard and compact under the application of water, as heavier soils are sure to do, unless well mixed with sand.

As all soils differ in different localities, it is impossible to lay down any fixed rule for the composition of potting composts; that is, proportions cannot be given which will secure the same results. But a good rule to go by is this: Mix in sand until the soil with which it is used shows a tendency to remain friable, whether dry or wet. Squeezing it in the hand will be a sufficient test for it when dry. To determine the nature of it when wet, fill a pot with it and pour on enough water to thoroughly saturate it all. Then watch the result. If the water runs

out readily, leaving a soil that looks wet but not muddy, you may be sure that you have it mixed in satisfactory proportions. But if the soil looks smooth, sticky, heavy, add more sand.

Garden loam forms a good basis for a compost that will fully answer the requirements of nearly all the common plants one grows in the window. If it is not rich, a fertilizer must be added to make it so. I never advise the use of barnyard manures, because they almost always breed worms in the soil, and these worms are sure to injure your plants. I much prefer finely-ground bone meal. This is rich in nutritive elements, lasting in effect, and perfectly safe to use. The proportions are one teacupful to a large pailful of soil, mixing it in well. If fine, the plants soon feel the effects of it. If coarse, a longer time must elapse before it dissolves sufficiently to impart its richness to the soil. Therefore, in purchasing, always get that which is finely ground.

If you get a plant with which you are not familiar, and do not know just what kind of soil to pot it in, examine its roots. If they are few and large, like those of the rose and the geranium, and strong in appearance, give them a moderately heavy soil. If they are small and threadlike, and there are a great many of them, give them a light, spongy soil. Plants with strong, large roots like a firm soil as a

general thing, and will not do well in a soil that is light and fine. On the other hand, fine-rooted plants cannot be expected to do well on heavy or compact soils, because their roots have not sufficient strength to penetrate them. A study of the roots of plants will enable one to decide satisfactorily, after a little experience, about what kind of soil your plants require. This is one of the things you must learn at the beginning of your floricultural career, and it is easy to learn it if you set about it in the right way. That way is, as I have said, by studying your plants.

It is a good plan to keep a supply of potting soil on hand, as, if you have many plants, some of them will need repotting, or shifting to pots of larger size, at intervals during the season. If you have the soil ready, quite likely you will give the plant the attention it needs just when it is needed; but if you do not happen to have the necessary soil you will be apt to let the plant wait until you get a supply, and this may be too late to benefit it. Make it a rule to keep a supply of soil on hand; also to make use of it whenever you see that a plant is in need of it.

To grow a plant well it must never be neglected. If you find that one has filled its old pot with roots until they form a network about the side, you may

be sure that a larger pot is demanded, and that at once. To allow a growing plant to remain in a pot too small for it is to give it a severe check—one from which it will not easily recover—and in order to properly develop a plant no check should be allowed to take place. It should be kept going ahead steadily. Therefore examine your plants frequently, and know the condition their roots are in. You can do this by slipping the soil out of the pot. This may seem a difficult and delicate operation to perform at first, but it is very easily done. Spread your right hand over the surface of the soil, your first and second fingers on each side of the plant; invert the pot, tap the edge of it against something hard and firm, then lift the pot with the left hand, and generally it will slip off the ball of earth without disturbing a root of the plant growing in it. If the roots, as has been said, form a network about the outside of the soil, you will know that repotting is necessary. Use for this purpose a pot one or two sizes larger than the old one. You need not disturb the plant in the least, if it is a young one, by repotting it. Simply fill in between the old soil and the new pot with fresh soil, pushing it down firmly with the fingers, and jarring the pot a little to make sure that it gets where it belongs. Then water well, and set the plant in a shady place for two or three

days, and your plant is ready to go on growing again.

When old plants are repotted, a good deal of the old soil can be crumbled away from among the roots. If this were not done, and larger pots were given each time, they would soon require a pot so large that we could not give them a place in the window. In repotting such plants care should be taken to disturb the old roots as little as possible. Simply crumble away the soil from about them, being careful to break none of them. When the plant is put into its new pot, or back into its old one, sift in fresh soil about these exposed roots and jar it down well, but do not press upon them with force enough to bruise them. Be tender of your plants always in all you do for them. After you have filled the pot with soil, apply enough water to saturate all of it. This will settle the earth about the roots firmly, and your plant will go on growing as if nothing had happened to it.

Young plants, seedlings, and those started from cuttings, must be handled carefully in potting, as their roots are very delicate and tender and are easily injured, and injury to them is sure to result in harm to the plant. It is always best to sift the soil lightly about them, and jar it down instead of pressing it down with the fingers, as the latter operation might

break them. Small pots are required at first for all young plants. Those three inches across are large enough for them. Leave them in these pots until their roots have filled the soil, and then shift to pots a size or two larger. Most young plants will require two or three shifts during the season, if growing steadily. Plants a year old, or older, will not need repotting oftener than once a year. Sometimes it is not necessary to entirely repot them. Dig out as much of the old soil as you can without disturbing the roots, and put fresh soil in its place. When this is done each spring and fall, it is all the attention the plants will require in this respect. Many prefer this to entirely repotting the plant, because it is less trouble. But for the first year of a plant's growth it is advisable to repot, wholly, from small pots to those of larger size.

Do not make the mistake of using large pots for small plants. It is a common mistake, but one by all means to be avoided, because a plant with but few roots will not do so well in a large amount of soil. It is not able to make use of all the nutriment in it, and soon gets into a condition quite similar to that of a dyspeptic person who is unable to properly digest the food taken into his stomach. It is overfed, and the result is a general weakening of the system which often results in the death of the plant.

A plant lacking sufficient room for its roots will be injured in consequence, and a plant given too much room, and therefore more food than it can properly make use of, will be correspondingly injured. This shows the danger of both extremes—lack of proper food and over-feeding—and the amateur who would be successful in the cultivation of plants must avoid it. Let your repotting be governed by a knowledge of the condition of the roots, and be sure to get your knowledge from examination of the roots rather than a mere observation of the plant.

CHAPTER II

WATERING PLANTS—DRAINAGE

THERE are three ways of watering plants—two wrong ways and one right way.

Some persons go on the little-and-often plan. They water their plants when they happen to think about it, applying only small quantities each time. The consequence is that the water does not penetrate the soil to any great depth, and that portion of the roots below the line of moisture is sure to suffer, and very often they die wholly, and the plant always has more or less of a sickly appearance. This plan is always a failure, because it does not adequately supply the needs of the plant. It may be sufficient to keep it alive, but it is not sufficient to keep it in a healthy condition.

Directly opposite to this is the plan of overwatering which many persons thoughtlessly follow. They water their plants thoroughly to-day. To-morrow they apply the same amount as to-day, and so they go on from one day to another. The result is that the soil is kept saturated with moisture. It is in the condition of mud all the time—a condition that suits only aquatic plants, and one in which the ordinary

plant will soon become diseased. The stagnant water will sour the soil, and the roots will begin to decay. This decay goes on because the conditions that originated it are continued, and by and by the plant dies. These are the two wrong ways, one equally as bad as the other. Extremes of this sort should be avoided, and the only way to avoid them is by watering your plants properly. And this is done by observing the following rule :

When you water a plant, do it thoroughly. Apply enough to reach all portions of the soil in the pot. Then wait until the surface of the soil looks dry before more is applied.

This rule, like all other rules, has its exceptions, but it is one that all amateur florists will do well to follow as closely as possible. . As long as the surface of the soil looks damp you may be sure that there is all the moisture in the soil below that is needed. When by evaporation this moisture has passed off to such an extent that the soil takes on a dry look, it is safe to conclude that more is needed, and then more should be applied. The experienced plant-grower will be able to judge of the condition of the soil in other ways, but the amateur must be governed to a great extent by the appearance of the soil. It is safe to say that no plant should be given more water as long as the surface of the soil looks wet.

Enough should be given each time to completely saturate all the soil in the pot. If proper drainage is given all surplus water—that is, all water that the soil cannot take up and hold—will run off at the bottom of the pot, through the hole provided for this purpose.

The term “proper drainage” seems to puzzle many amateurs, but there is nothing about it that need puzzle any one. Drainage is provided to keep the soil above from washing down and closing the hole in the bottom of the pot. There should be at least an inch of it in four and five-inch pots, and pots of larger size should have an inch and one-half to two inches of it. Very large pots will need three inches of drainage. The best drainage material is made from old pots and brick. Pound it well, until it is broken into pieces not larger than a marble. Put these pieces into the bottom of your pots in the quantities advised for the various sizes, and shake them down well. Over them it is well to lay a bit of sod or some moss—something that will prevent the soil from working down among them—before filling the pot with compost.

Many persons are very careless about drainage. Some consider it a whim, and neglect it altogether, but the plants such persons grow generally prove the necessity of it. There is no whim about it. It is

based on a scientific principle. If you would avoid the evil sure to result from too much moisture in the soil you must provide some way for surplus moisture to escape; and this is precisely what we do when we drain our pots as here directed. With such drainage there is absolutely no danger from over-watering. The soil can hold in suspension only a certain amount of water. If it is not dammed up, and escape thereby prevented, water enough to injure the roots of a plant will never be retained by the soil. Therefore be sure to provide good drainage for your plants.

I have advised the application of enough water to thoroughly saturate the soil each time. How can we tell when enough to do this has been given? By applying so much that some will run off through the drainage hole in the bottom of the pot. When we see some escaping there we may know that all the soil above it is wet through.

From what has been said it will be understood that there is no regular watering time for plants. Some have roots that enable them to make use of much more than others. Some soils part with moisture much more rapidly than others. Some rooms are kept so warm that evaporation takes place quickly. When all these things are considered it will be seen that there can be no regular time for

watering plants. Water must be given when the appearance of the soil shows the need of it, and not till then.

Some persons say that rain or soft water should always be used. I have used soft water and hard water, and have never been able to see any difference in the effect on plants. I would advise taking the chill off well water in winter before applying it to very tender plants, but ordinary plants, like the geranium, do not require this.

CHAPTER III

EXPOSURE—SHOWERING—GENERAL HINTS

THE best exposure for plants is, as a general thing, a southern one. The next best is an eastern one. Some plants can be grown in western windows, but not as well as in the other exposures named, because of the intense heat of the afternoon sun. If care is taken, however, to shade the glass during the hottest part of the day, it is possible to grow plants well under these conditions, but it will necessitate a good deal more work and attention, although the true flower-lover will not mind that. He will be willing to work for the plants he loves.

There are few plants that do well in a north window. The lack of sunshine prevents the production of flowers. But some of the palms, the aspidistra, ferns, and English ivy will flourish there, if particular attention is given to watering, and the "green things growing" in a sunless window will add greatly to the attraction of any room. Because of the absence of sunlight evaporation will take place slowly from plants in a north window, and it will be necessary to give only the amount of water needed to

keep the soil moist. More than this will bring about a souring of the soil, a condition seldom met with when plants are fully exposed to sunshine, and this is pretty sure to bring on a disease of the roots which often results in the sickness or death of the plant. Stir the surface of the soil two or three times a week, and let the air have free entrance to the roots of the plants. It will in some degree do for the soil what the sunshine would do for it if it had a chance to reach it.

Most plants, flowering plants especially, require a good deal of sunshine. You can hardly have too much to suit the geranium, the heliotrope, the carnation, and the rose. They must have it in order to fully develop the beauty of their colors. Consequently a south window is best of all for such plants. Others, like the fuchsia and the begonia, do not care for strong sunshine, or sunshine all the day, and these are therefore better adapted to an east window. If you can contrive to combine eastern and southern windows into a sort of southeastern corner nook for your plants you will have an ideal place for them. The sun-loving plants can have the south windows, those liking the early sunshine the east ones, and all will get the benefit of the best possible light throughout the day.

Never have curtains at the windows where you

keep plants. If shade must be given, let it be arranged by awnings from the outside. Western windows can be covered with vines in summer, thus tempering the effect of the afternoon sun to a great extent. Keep the windows open as much as possible, as the glass draws the heat, and helps to burn the plants.

Showering plants is of the greatest importance, nearly as much so as watering. Out-of-doors they get the dew daily, and the benefit of frequent showers, and as a consequence the red spider is seldom found on them. In the house they fail to get this moisture on their foliage, and very soon the leaves will begin to turn yellow and fall off, and the plant takes on a sickly look and generally dies, unless it is put out-of-doors. If this is done it often recovers.

An examination of the under side of the yellow foliage will show that it is covered with tiny webs, in which minute red specks are seen, looking more like grains of cayenne pepper than a living creature. But watch them and you will see them move. Small as this red spider is, he is a most deadly enemy to plant growth, as he sucks the life-blood from the branches, and is sure to destroy whatever he attacks if left unchecked. Nothing will rout him but water. He revels in a dry atmosphere. Make and keep it moist, and he will take his departure.

Every amateur florist should have a brass syringe, made expressly for the use of florists. With this he can throw a stream or spray of water at pleasure, and the use of it enables him to throw water just where it is most needed—against the under side of the dense foliage, for there the spider will take up his quarters, believing himself safer from moisture there than on the upper side of the leaf. Use this syringe daily among your plants. It is a good plan to put oil-cloth or linoleum under the plant stand to protect the carpets.

If you start out with a daily showering of your plants, and make it a part of the regular program, you will have no trouble in keeping the spider down. But neglect this part of their care for a week, during a warm, dry spell, and the chances are that your plants will become infested, and when the pest has once obtained a foothold you will find it a hard matter to rid them of it. It is much easier to keep him away than it is to drive him away. An ounce of prevention is, in this case, worth a good many pounds of cure.

In case your plants should become infested before you are aware of it, heroic and prompt measures should be resorted to at once in the extermination of the insect. In order to effect this, heat water to a temperature of 120°, and dip the infested plants in

it, allowing them to remain under water for about half a minute at a time. Repeat this operation three or four times at intervals of half an hour, and you will be pretty sure to kill all the spiders. Then begin the daily showering already advised, and keep it up. Don't wait for the spider to make a reappearance, but act on the defensive, and refuse him a chance to re-establish himself.

In addition to the daily shower-bath, keep water evaporating on stoves, registers, or radiators in rooms where artificial heat is used. One reason why so many fail to grow plants well in the living-room is the air in it is robbed of its vitality by excessive heat. We keep our rooms too warm for the health of both plants and persons. Moisture in the air will, to a great extent, counteract this evil.

In furnace-heated houses it is almost impossible to grow plants, because the dry, intense heat extracts the vital principle from the atmosphere. Plants breathe as persons do, and they cannot be expected to flourish in an air from which moisture has been almost wholly taken. The necessity of admitting fresh, pure air frequently, in liberal quantities, will therefore be readily understood. Make it a rule to treat your plants to a draught of outside air on every pleasant day by opening some window other than that at which the plant stands, or a door some

distance from them. This allows the cold air to mingle with the warm air of the room as it flows in, and thus the chill is taken from it before it reaches the plants. Air from outside admitted in winter at the window where plants stand is generally cold enough to injure them, hence the advice to admit it through windows or doors some distance from them. By the daily use of the shower-bath and the regular admission of fresh air, it is often made possible to grow plants where they would be sure to die if these precautions were not attended to. The importance of them will therefore be understood, and the wise florist will see that they are made a part of the regular treatment of the window-garden. It is a good plan to keep a basin of water among your plants, and have at hand a small atomizer. Whenever you are at work among them during the day spray them. It will take but a moment to do it, but the effect of this practice, if repeated often, will soon be seen in the vigorous and healthy growth of your pets. The importance of moisture on the foliage as well as at the roots of plants has not been fully realized heretofore, but we are rapidly coming to recognize the necessity for it.

Keep the soil stirred well about your plants. This admits air freely to their roots and prevents the formation of a crust on the surface, which interferes

with the free entrance of water. An old-fashioned, two-tined fork is a good tool to use in loosening the soil.

Always keep your plants clean. This not only adds to their attractive appearance, but is of great benefit, hygienically. If you allow the pores of the leaves—the lungs of the plants—to become clogged with dust, they suffer greatly, and will soon become sickly. The daily showering, which has been advised, will prevent this to a great extent. It is a good plan to cover them with a light, thin cloth, while sweeping and dusting the room. Remove every dying leaf as soon as seen. Cut off all flowers as soon as they begin to fade, and never throw them down among the plants to decay. Burn them, or dispose of them in some way that will not make them a source of infection to your plants.

Turn your plants at least once a week, so that the sunshine and light will have a chance to get at all sides of them. If this is not done, they will soon become one-sided, as their foliage and branches will be drawn to the light.

If they show a tendency to make an unsymmetrical development, prune away the objectionable branches, or pinch off the ends of them, and keep them pinched back until some of the weaker branches have a chance to get a start. A strong

branch will often, if left to itself, dominate the entire plant by drawing to itself the nourishment which ought to be shared with the smaller branches. Do not allow this. The nipping-off of the end of it will give it a temporary check, during which time the rest of the plant may appropriate some of the vital force which it has monopolized.

If a plant shows a tendency to grow up tall and branchless, cut it back at least a third. In most instances, branches will start along the stalk. If only one or two start, however, cut these back as soon as they have made a growth of four or five inches, and keep on doing this until you have obliged the plant to throw out as many branches as you think necessary to make the plant bushy when developed. You can almost always force a plant to come to your terms, in this respect, if this course is pursued.

CHAPTER IV

INSECT ENEMIES

EVERY one who attempts to grow plants must make up his mind at the start that it will be necessary, sooner or later, to wage a battle with insects.

One of the most destructive enemies of plant-life is the red spider, spoken of in the last chapter. The treatment advised therein is the only successful one in fighting this pest.

The aphid, or green plant louse, is generally found among all collections. Where showering is done daily and good care of the plant is taken, the aphid will almost always be kept in check, and thus prevented from doing much damage. But neglect your plants for a short time and you will be surprised some day to find the young and tender branches of many kinds completely covered with aphides. This insect increases with wonderful rapidity, if left alone, and in a short time will ruin a collection if a persistent and exterminating warfare is not waged against it.

The principal insecticide used in fighting the aphid is tobacco, in one form or another. Some depend

upon fumigation entirely. I consider this the most effective way of killing off the pest, but its disagreeable features are so pronounced that many persons hesitate to resort to it. The odor of burning tobacco will penetrate to every room in the house, and cling for days to everything with which it comes in contact. It is so strong that it often brings on nausea, and on this account few persons are able to use it in this form. But the fact that the fumes of the weed penetrate everywhere is one of the strong arguments in its favor. It searches out the nooks and corners where the aphid is likely to be in hiding, and none escape it.

It is a good plan to fit up a room to be used expressly for fumigating purposes. Have it apart from the main portion of the dwelling. Make it as snug and tight as possible. Let there be shelves across the middle of it, two or three feet from the floor, to set the plants on. Put some live coals in an iron pot, and over these sprinkle a quantity of tobacco leaves and stems, such as can be bought at any cigar manufactory. It is well to dampen them somewhat, as this makes them burn more slowly, and they throw off a denser smoke than the dry material. Do not put them on the coals until you have your pot or kettle in place under the plants. Then put them on and close the room tightly. Leave the plants

in the smoke for about fifteen minutes. At the end of that time, if the tobacco has burned well, you will find that every aphid has fallen from the plant, and is either dead or dying.

Sometimes the smoke is not strong enough to kill the insects, but they will be found in a stupefied condition clinging to the branches. Set the plants over a newspaper spread out on the floor, and jar them sharply. The insects will tumble off in great quantities. Gather them up and burn them, to make sure that none revive from their temporary stupor.

If you have no room that you can use for fumigating purposes, a large dry-goods box can be made to answer very well by pasting paper over its cracks to make it tight, and fitting up a door in one side to admit plants and your fumigating outfit.

Tobacco tea is often used in fighting the aphid. To make it effective, a considerable quantity should be prepared, and the plants should be held upside down and dipped in it. It will be strong enough to kill the insects when about the color of ordinary tea, as used on the table. Let the plants remain in it for about five minutes. This process is a slow and laborious one, as only two or three plants can be treated at a time, and they must be held in place while their tops are under water. It is, however, quite effective, and there is but little of that un-

pleasant smell which results from fumigation. Yet, for large collections, I must advise the latter. But little good is done by applying tobacco tea with a syringe. Some of the insects are sure to escape, and in a short time another application must be made.

After fumigating plants, shower them well with clear water.

The mealy bug is a most annoying pest when he becomes domesticated among one's plants. He looks like cotton, white and downy. He gets into the axil of the leaf, and hides in cracks and crevices where it is almost impossible to get at him. On this account one cannot fight him "in the open." The only way to wage effective warfare against him is by using some infusion strong enough to rout him. It must be applied with a syringe, and applied wherever there is a crack or crevice large enough for him to crawl into. I have found fir-tree oil soap to be a very reliable agent in fighting this enemy. Two ounces of it should be dissolved in water just brought to the boiling point. To this should be added enough water to make about two gallons of the infusion. When it begins to cool, apply it. Be sure to use enough to reach every part of the plant. If you do not your labor will be spent for naught, for if a few of the bugs escape they will propagate rapidly and in a short time your plants will be

infested as badly as ever. This pest is generally introduced into ordinary window collections by plants bought from greenhouses, where they are almost always to be found. It is well, therefore, when you buy new plants, to look them over very carefully before putting them with your other plants. A little attention of this kind, at the proper time, may save a great deal of labor and vexation later on.

Smooth-leaved plants, like the English ivy, the hoyo, the lemon and orange, the oleander, the palm, and the myrtle are often attacked by what is called scale. This insect, if insect it can be called, attaches itself to the surface of the leaf, and subsists by sucking its juices. In a short time the leaf will take on a yellow look, and the whole plant will have a sickly appearance. Often the branches and stems are almost completely covered with it. Nothing is more effective than the same fir-tree oil soap advised in fighting the mealy bug. Apply it with a rather stiff bristle brush. Rub the parts affected forcibly enough to dislodge the insect. Go over each plant, branch by branch, and let not one escape you. For two or three days after doing this, give the plant a thorough washing with the soapsuds, to make "assurance doubly sure."

Plants are often injured by worms in the soil. The

most destructive kind is a small white one, which bores its way into the tender young roots. It is generally introduced by the use of liquid manure prepared from barn-yard soil, or by the same soil used in the potting-compost. On this account, as I have already said, I never advise the use of barn-yard manure. When the worms are found, prepare lime-water after the following plan: Take a piece of perfectly fresh lime, as large as a coffee-cup; put it in an ordinary-sized pail of water and let it dissolve; when dissolved, pour off the clear water and apply to your plants. The sediment found in the bottom of the pail is worthless. Apply enough to each plant to thoroughly saturate all the soil around it. Unless this is done, the application will do no good. Many persons are under the impression that lime-water prepared in this manner is so strong that plants might be injured by it if applied in liberal quantities, but such is not the case. Water can only hold a certain amount of lime in composition—never enough to harm any plant. Bear this in mind, and do not be afraid to use enough to penetrate every portion of the soil in the pot. It is very important that the lime used should be fresh. Air-slaked lime is worthless. (*See note, p. 175.*)

CHAPTER V

PROPAGATION

Most house-plants are propagated from cuttings, which are placed in sand or earth to form roots.

A cutting is a piece of branch three or four inches long, taken from some part of the plant of recent growth. Old branches are not good for this purpose, as they are generally covered with a tough bark, which is not favorable to the development of roots. Neither is new, soft wood very desirable, as it often decays before a callus forms. A callus is a sort of healing-over of the edges of the cutting, and is a preparatory stage in the formation of roots. This must form before the roots can be produced. A cutting, in which the wood is neither very tough nor very brittle, is in about the right condition to root well. Bend the branch selected. If it partly breaks and partly bends, you may be sure it is about what you want. Cut it off with a sharp knife, unless it is a branch which can be removed entire from the parent plant, in which case it is better to remove it by breaking it away from the point of union. Trim away the lower leaves, leaving two or three at the

end of it. Insert the base in a shallow vessel of earth, making it firm in its place by pressing the soil against it with the fingers.

It will be found that nearly all cuttings root most readily and certainly in clear, sharp sand, which should be kept wet all the time: not wet enough to be in the condition of mud, with water settling to the bottom of the vessel, but with as much water in the sand as it can possibly retain without becoming muddy. Keep it in a warm place. You will be surprised to find that most cuttings have begun to make roots at the end of a week, and in three weeks they will be ready to put into pots. Be sure never to allow the sand to get dry. If you do your cuttings will never revive.

Plants having a rather tough bark, like the English ivy and the oleander, generally root better in water than in sand. Often they refuse to put forth roots for weeks, but do not be discouraged as long as the leaves at the end of the cutting remain fresh. It is a good plan to put them in wide-mouthed bottles filled with rain-water. Suspend them in the window where the sun will shine upon the lower part of the cutting. As the water evaporates, add more from time to time, keeping the bottle about two-thirds full. Leave them in the water until their roots are two or three inches long.

Many plants are propagated by division of the roots. Ferns of the *adiantum* class can be increased in this manner more effectively than in any other. So can *asparagus sprengeri*, and all varieties of the *begonia* throwing up stalks in large numbers from the crown of the plant. Cut the roots apart with a sharp knife.

Bulbous and tuberous plants, like the *amaryllis* and the *calla*, can be propagated by removing the young offshoots as they appear about the old plants, and potting them in soil similar to that in which the old plants are growing.

CHAPTER VI

SUMMER CARE OF HOUSE PLANTS

VERY many persons are in the habit of putting their house plants out of doors in summer. Some of them turn them out of their pots and plant them in the open ground. Others "plunge" them—that is, they sink the pot with the plant in it in the ground up to its rim.

These methods of summering plants are resorted to because the owners think they "save trouble" by them. They are under the impression that plants so treated will "take care of themselves," consequently they save a good deal of labor by resorting to them.

In this they are mistaken.

Plants that one expects to make use of during the coming winter must be given attention all through the season if fine specimens are wanted, and the true flower-lover will not be satisfied with anything else. It is true that a plant turned out of its pot, and set in the open ground, will make a much stronger growth than it would if kept in the pot, and that it will make this growth without any attention from its owner. But, when fall comes, and it be-

comes necessary to lift and pot the plant for removal to the house, a large share of the roots will have to be cut off in order to reduce the amount of earth to the size of the pot to be used ; and when the young, working roots are thus removed it will be necessary to sacrifice a proportionate amount of the top. The process of lifting and repotting is a laborious one, and one that would seriously disturb the plant if no roots were cut away. Taking this into consideration it will readily be seen that a plant so treated must be greatly weakened at the very time when it needs its strength most, for the period of removal to the house is always a trying one to any plant, because of the great change in conditions which necessarily takes place. Notice a plant that has been summered in the open ground, after it has been lifted and taken into the house in fall, and you will see that the loss of roots and branches and the lowered vitality resulting from the disturbance it has received have given you a most unpromising looking specimen. The vigor of growth which characterized it while in the ground has disappeared. Such a plant will generally require all winter to recuperate, and while this recuperative process is going on you will get few, if any, flowers from it. Therefore, you have gained nothing by putting it in the garden, except that while it was there it "took care of itself." But you

have really lost a good deal, because the plant is worse off than it was in spring after having done a good winter's work. You will have to admit that the labor of lifting and repotting was quite sufficient to offset all the attention it would have required if it had been left in its pot.

"Plunged" plants generally suffer from lack of moisture at their roots. The soil about the pots seems moist, and from this one is likely to get the impression that the soil in them is in a similar condition. Examination will generally convince one that such is not the case. The pot prevents the soil in it from absorbing a sufficient amount of moisture from the soil about it, and unless one is careful to watch the plants, and water them frequently, they are almost certain to suffer severely from drouth. If you have noticed "plunged" plants you must have observed that they never grow with the vigor and luxuriance of plants in the open ground. The chief factor in the difference of development is the result of lack of sufficient moisture at the roots. To give them the water they need makes it about as much work to take care of them as they would require if kept in pots on the veranda, where they can be given shelter from strong sunshine and winds.

I would, therefore, advise always keeping plants intended for next winter's use in pots during the en-

ture season. I would give them a place on a partially shaded veranda, or under a shed with a slat roof. In either of these places you have them under control to a great extent. You can give all the water required to plants whose growth it is advisable to encourage at this season. You can withhold water from those needing a resting spell, thus keeping them almost dormant, and you can temper the sunshine to the needs of each specimen. You can give the little attentions daily which they would most likely go without if put in the garden; and the secret of successful plant-growing consists, in a great degree, in giving just these "little attentions" which are difficult to describe, but which the observant plant-grower will soon learn if he goes to work lovingly and carefully, with a view to fully understanding the character and requirements of his plants. And it is quite as necessary that you should know your plants as thoroughly as you know your children. You will find peculiarities about each one of them, and these peculiarities cannot be ignored if you would be successful with them.

Plants summered in this way very often do not need complete repotting in fall, simply the removal of the upper portion of the soil in the pot and the substitution of fresh, rich earth. The result will be that they will come to the season of removal to the

house in the best condition possible to stand the trying change.

I do not like to hear persons talk about the "bother" of plant-culture, or of letting plants "take care of themselves." If one really loves plants—and the man or woman who would be thoroughly successful in the culture of them must be a lover of them—the labor of caring for them will be found a source of rest rather than weariness. If one does not love them, he should never attempt to grow them. Plant-growing by those who simply want plants because their neighbors have them is quite likely to be a failure. You must care more for the plant itself than you do for the fads and fashions of floriculture if you would achieve success with it.

Plants intended for winter use should never be allowed to bloom in summer. You must do all you can to induce the plant to store up energy for the coming season. If allowed to bloom now it will have exhausted itself to a greater or less degree before the period comes when you hope to get the greatest amount of pleasure from it.

Do not give fertilizers to plants not making strong, active growth. The point to aim at in summer is rest, and to feed a plant on rich food encourages the reverse of rest. Hold back your fertilizer until the plant begins the work of the season.

As has been stated, the season of removal to the house is a most trying one to plants. Out of doors they have been accustomed to fresh air, moisture, and a not very high temperature. In the house they will find conditions changed greatly. The air will be dry, and there will be heat of an enervating character, because of the lack of moisture in it. So the windows should be left open, as much as is possible, if the weather is pleasant, and the plants should be showered every evening. Use no fire heat unless the weather is quite cold, and then just enough to keep a chill off the air. Keep up this treatment until your plants have accustomed themselves to the change. By care in this respect you can get them used to the new conditions by such easy stages that when the cold season arrives and the rooms have to be closed they will not mind it much, especially if you are careful to keep up the daily shower-bath and the admission of fresh, pure air during the middle of the day.

At this season insects breed rapidly because the conditions which generally prevail in the house are extremely favorable to their production. It is well, therefore, to make sure that your plants are entirely free from them when they are brought in. If you find one aphid give the whole collection a thorough fumigation. In addition to this it is well to treat

them to a bath in an infusion of fir-tree oil soap, as advised in the chapter on insect enemies. Such precautions are never useless. If "eternal vigilance is the price of liberty," it is no less true that it is also the price of freedom from insects among the plants in the window.

When plants are not growing much but little water will be needed. They are not in a condition to make use of much moisture then through the medium of their roots. Therefore be careful not to give enough to cause souring of the soil, which frequently results at this season of the year, because evaporation goes on slowly. When the plant begins to grow it will be in a condition to make use of larger quantities. Therefore study the conditions which exist and be governed by them.

Many persons make the serious mistake of giving their plants liberal application of a fertilizer at this season, thinking to force growth. This is all wrong. No plant needs a fertilizer while it is in a dormant condition. It is not in shape to make use of it, and to give it is to injure the plant. Fertilizers should only be given when a plant is making active growth. Bear this in mind, for it is a matter of great importance. Many a plant has been killed by giving it rich food when its stomach was unable to digest it.

CHAPTER VII

GERANIUMS

THE geranium has been justly called "everybody's flower," because everybody can grow it with very little trouble, and grow it well. It flourishes under circumstances unfavorable to the production of fine specimens of most other plants. It is a profuse and almost constant bloomer at nearly all seasons of the year. It comes in an almost endless list of desirable varieties, both double and single, and its colors range through many shades of red, scarlet, and crimson to pale rose, peach, salmon, and pure white. The dark colors are of exceeding richness and brilliancy, and the lighter ones are very dainty and delicate. No other plant can brighten up the window like this one. A well-grown specimen ought to have at least half a dozen trusses of bloom at a time during the winter, and the effect of half a dozen such plants in a window of the ordinary size can readily be imagined after one has seen some of the finer sorts at their best.

Personally, I prefer the single varieties. Their flowers have, to me, much more individuality than the double kinds, but the great decorative possi-

bilities of the latter are not to be valued lightly. Their trusses last longer than those of the single kinds, and are, as a general thing, more freely produced. The trusses of some of the finest double sorts resemble one large flower more than a collection of small blossoms, so closely are the individual flowers set together. They are veritable balls of bloom.

In order to have plenty of blossoms from the geranium during winter, the plants selected for winter use should receive special treatment in summer. They should never be allowed to bloom. As soon as a bud is seen nip it off. From time to time during the season pinch off the ends of the branches. This will cause other branches to start along the main stalks of the plant, and by fall you will have a specimen that is bushy and compact, with blossoming points all over it. Unless you pinch back your plants and oblige them to send out branches all along the stalks, you will quite likely have a tall, sprawly specimen with but two or three points from which to expect flowers. Left to train itself, the geranium that grows in a pot is capable of making itself about the most awkward and ungainly of all plants. But insist on its growing into symmetrical shape by frequent and proper pruning and pinching and you will find it very tractable.

Training should begin when the plant is small. Let it make a growth of four or five inches. Then nip off the top, and keep on doing this until you have at least half a dozen branches started near the base of the plant. These, if nipped back when five or six inches long, will also put forth branches, and the result is, as I have already said, a bushy, compact specimen quite unlike some of the plants we see growing in some window-gardens. So unlike them, in fact, that they seem like distinct varieties, as regards their habit of growth.

Plants which have grown and blossomed in the garden in summer are worthless for winter use. They must have a long period of rest before they can be expected to bloom well again. Such plants will be nearly all winter in recovering from the effect of the season's work in the open ground, but plants treated as here advised and grown expressly for use in the house in winter will begin to bloom in November, and continue to produce flowers throughout the entire season.

There are so many fine varieties well adapted to general cultivation that it is a difficult task to say which are best. But I venture to name half a dozen each of the single and double kinds I most prefer, assuring any who adopt my selections that they will be pleased with them.

SINGLE SORTS

ATHLETE.—Brilliant scarlet; flowers large and round; trusses enormous; a profuse bloomer.

MARY HALLOCK FOOTE.—Salmon, shading to bright rose at centre, with a wide white edge to each petal; a most lovely variety.

GRANVILLE.—The finest pink sort; a very free bloomer; color very soft and delicate.

SOUVENIR DE MIRANDO.—A fancy sort; florets large and full; upper petals cream-white, edged with rose; lower petals salmon-rose, with white markings.

VIOLET QUEEN.—A most beautiful shading of rose and heliotrope; truss large, and individual flowers of good size and fine form.

MARGUERITE DE LAZRES.—Pure white; the plant is very floriferous; the flowers are large, and never come stained with pink or green, as many of the so-called "whites" do.

DOUBLE SORTS

S. A. NUTT.—Rich, dark crimson; flowers perfect in shape and size.

MADAME DEBOUCHE.—Bright rose-color; large truss and fine flower.

MARY HILL.—Deep pink, of a pure, rich tone; flowers large; very free bloomer.

COLOSSUS.—Flower of great size, often two and one-half inches across; color a soft, bright rosy crimson.

MARQUISE DE GALARD.—Rosy cerise, shading to orange; a striking sort; plant of compact habit; almost a perpetual bloomer.

LA FAVORITA.—Pure white; very fine.

The foregoing sorts comprise the most distinct representatives of each class. But there are scores of other fine sorts from which to select, and all tastes can be suited.

One of the most useful geraniums I have ever grown is Madame Salleroi. This sort never blooms, but it has small leaves produced in such profusion that a plant is one mass of foliage. The leaves are a pale green edged with pure white, and they have quite as ornamental effect as flowers. The plant grows in a rounded, compact form without any training whatever, and will be found extremely useful to fill in among larger plants. It is very fine for massing in mantel decoration. I grow dozens of plants of it, each year, in the greenhouse, and find it one of the most satisfactory of ornamental foliage plants.

There should be a rose geranium in every collection, not only for its beauty, but because its leaves will be found indispensable in making up small

bouquets and boutonnieres. Another fine, fragrant sort with beautiful foliage is the Dr. Livingston. Its leaves are almost as finely cut as those of some varieties of fern.

The ivy-leaf varieties comprise some very beautiful specimens for window-use. One of the finest is Souvenir de Charles Turner, with large flowers of a bright pink, the upper petals feathered with maroon. Another good sort is Jeanne d'Arc, pure white. P. Crozy is a very fine variety, with flowers of a rich shade of scarlet. These varieties, because of their semi-climbing habit, must be given support of some sort. They are very charming when grown as bracket-plants, and allowed to droop.

Some persons labor under the impression that a geranium is worthless after the first year of its existence. This is a mistake. It takes at least two years to fully develop. A year-old plant is merely a hint of what a two-year-old plant will be if properly grown. And its usefulness is not outlived at two years. Cut it back sharply in spring and repot it, and keep it growing slowly during summer, not allowing it to bloom, and in fall you will have a plant quite as good, or better, than it was the previous year. Such a plant will prove to you what a geranium is capable of doing in the window; but a young plant is only able to make promises for the future.

CHAPTER VIII

FUCHSIAS

THE fuchsia is one of the best summer-blooming plants we have. It begins to blossom early in the season, and continues to give us flowers in great profusion until late in the fall. A full-grown specimen is a sight worth going a long way to see when in full bloom.

The fuchsia is easy of cultivation. But it requires a little different treatment from the geranium and plants of that class. In the first place, it likes best a soil composed almost wholly of leaf-mold. It is well to mix coarse sand with it generously, as this facilitates free passage of water through it. The pots must be well drained, as stagnant water at the roots is sure to injure this plant.

It likes a good deal of water, both at the roots and overhead. If the drainage is perfect and the soil is light and porous, one can hardly give it too much at the roots. Make it a practice to water it daily and thoroughly. Apply until some runs off at the bottom of the pot. Never neglect this part of the treatment. If you allow a plant to get really dry at

the roots it will quite likely drop its leaves and buds, and it receives a check from which it will hardly recover during the entire season.

It requires frequent repotting during the early stages of its growth. If allowed to become root-bound while young and making free growth it is sure to be greatly injured. Keep watch of its roots, and as soon as you see that they fill its old pot shift to one of larger size. A large specimen will require about a ten-inch pot, if you would enable it to do itself justice.

It does best in a window opening to the east. The sunshine of the early part of the day suits it much better than that of mid-day. In a west window its leaves will curl as if scorched under the influence of the heat of the afternoon sun. Never attempt to grow it there.

It is of extremely rapid growth. A plant started in March will often attain a height of five or six feet by August. It grows "like a weed," and one well-developed plant will quite fill a window of the ordinary size. As most varieties are of very slender habit, support will be needed. I would never advise the use of racks or trellises. They are heavy, unsightly affairs, and a plant trained on one is never very graceful. The most satisfactory support I have ever found is a stout iron rod with holes

punched through it five or six inches apart. Through these holes run a heavy wire, twisting it out and in in such a manner that the loops in it project eight or ten inches on all sides from the rod. Do not attempt to make these regular. They will not be seen after a little, and they are only intended to support the branches, so it does not matter how they look when the frame is made. Tie the main stalk of the plant to the rod and let the side branches dispose of themselves over and among the wires. A plant trained in this way will have a natural, graceful look, and everybody will admire it because of the absence of formality and primness which almost always characterizes a specimen trained to a flat rack or trellis.

Some varieties, like the lately-introduced Little Beauty, are of a drooping habit. These never appear to advantage when made to assume an upright form. Let them train themselves. Such a plant is most effective when grown on a bracket about half-way up the window.

There are many varieties of this plant in cultivation, all good. Some are single, some double. The single sorts are usually preferred as they are more graceful than the heavy double flowers which seem too great a weight for the slender stems upon which they grow.

The best single varieties are :

CONVENT GARDEN WHITE.—A lovely sort; the tube and sepals are ivory-white; the corolla a rich rose-color. This sort grows rampantly, and is a wonderfully free bloomer. I consider it the loveliest of all fuchsias.

BLACK PRINCE.—Of stiff, erect growth; sepals crimson, corolla violet, fading to magenta, large and well expanded; a great bloomer.

ROSE OF CASTILE.—Of erect, tree-like habit; sepals creamy white, slightly tinted with flesh; corolla rich purple; very fine.

EARL OF BEACONSFIELD.—Tube and sepals rosy carmine; corolla several shades darker; of strong growth; very floriferous.

M. THIBAUT.—Tube and sepals dark red; corolla rose vermillion, shaded with violet.

MRS. MARSHALL.—White tube and sepals; corolla delicate rose; a charming flower.

The following are excellent double varieties :

PHENOMENAL.—Of great size; tube and sepals crimson; corolla dark purple; free flowering.

MRS. E. G. HILL.—A general favorite with those who like double fuchsias; tube and sepals bright red; corolla pure white; of strong habit, and a most profuse bloomer.

MADAM BRUANT.—Tube and sepals scarlet; corolla heliotrope blue, flamed with rose; a novelty of great merit; very strong grower, and a great bloomer.

ROSAIN'S PATRIE.—Tube and sepals rosy carmine; corolla white; very fine.

LITTLE BEAUTY is a fine sort for a hanging-basket. It begins to bloom when a small plant and produces great quantities of flowers throughout the season. Its branches droop and soon completely hide the pot. Tube and sepals rich red; corolla violet, fading to mauve. A charming little plant.

There seems to prevail an impression that the fuchsia is—or ought to be—a winter bloomer, and many persons keep them in the window all winter, hoping to get flowers from them. This they generally fail to do, greatly to their disappointment, and they are at a loss to understand the reason of their failure. They would not make this mistake if they understood the nature of the plant better. It is not a winter bloomer, save with one exception, and the place for your plants in winter is the cellar. There they should go by the latter part of November, and there they should remain until the first of March. During the winter give very little water. No harm will come of it if you allow them to get so dry that they shed their leaves. Keep them away from frost. In March bring them up, and put them in the light.

and give water in small quantities at first, increasing the supply when the plant begins to show signs of growth. As soon as you can make sure where the new branches are going to be, cut away at least half the old top. Repot as soon as possible after the plant has a start. Year-old plants will not need such frequent shifts as has been advised for young plants. Otherwise the treatment given should be the same.

I have said that there is one exception to the statement that the fuchsia is strictly a summer bloomer. This exception is *speciosa*. This sort would bloom the year round if allowed to do so. It is really a perpetual bloomer. I would advise growing it for use in winter by keeping it as nearly dormant as possible in summer. Give water moderately, and never allow it to perfect a flower. In September repot it, and after that encourage it to grow freely by giving it all the water it can use. It is naturally of a drooping habit, and should be trained to a central support, as already advised. The slender branches, which will be thrown out in great profusion from the main stalk, will take a downward curve, of themselves, and the flowers which a thrifty plant will produce in enormous quantities will so load them down that they often have to be tied up to prevent their breaking. A

well-grown plant of this sort is a most beautiful sight.

Fuchsias are fine plants for the decoration of the veranda in summer. They do better when exposed to free air than when kept in the house. Be careful to protect them from strong winds, as their branches are brittle and easily broken.

Few plants propagate more easily than the fuchsia. Cuttings inserted in sand, and kept moist, are almost sure to grow.

It is useless to try to grow this plant to perfection unless one can give it the soil that suits it. In clay or heavy loam it will make a weak growth, and fail to flower well. It pays to take a good deal of trouble to get the plant the soil it needs. If grown well, it makes one of the most attractive plants an amateur can have in his collection. A fine collection of fuchsias is something to be proud of, and the owner of it is always sure of the satisfaction of having it admired by all who see it.

CHAPTER IX

THE CHRYSANTHEMUM

ONE of the most popular and beautiful flowers of the day is the chrysanthemum, and its popularity is well deserved. Any one can grow it. It blooms at a time when other flowers are past their prime, or have not yet begun the season's work. All these merits tend to make it a general favorite.

I have said that it is of easy cultivation. This is true, when one understands the right treatment for it.

Being what may be called a one-season flower—by that I mean that it completes its growth and develops its crop of flowers in a period not extending through much more than half the year—it must be treated in such a manner as to keep it making steady progress from start to finish. Unless this is done, the highest degree of success cannot be attained in its culture.

It is easily propagated by cuttings, or by division of the roots. Old plants will throw up dozens of shoots about the base of the last-year stalks, and each one of these shoots can be cut away from the

old plant in such a manner as to leave a bit of root attached. Put these shoots in three-inch pots, early in the season, in a light, rich soil, and encourage them to make a good start by keeping them moist at the roots, and in a light, warm place. In a month or six weeks they will be found to have filled their pots with roots, and when this has been done, they should be given a shift to a pot two sizes larger. It is very important that this work should be done at the time when the necessity for it is apparent. If you allow the plant to remain in the pot until its roots get cramped for room, it receives a check from which it will not fully recover during the season. Therefore, if you want to grow fine specimens, make it a rule to shift your plants whenever they need it. The second shift will be necessary in about two months after the first one is made. A third one will follow in due season, the precise time for it being determined by the condition of the roots, on examination. Probably few amateurs will give more than three shifts in a season, but if perfection is aimed at, four will be needed, the last one coming about the middle of August, just before the buds begin to show. A nine or ten-inch pot will not be too large for a plant, if well developed.

It is also very essential that a rich soil be used. This plant is a great eater. It can hardly have too

much or too rich food. A good compost for it is made up of garden loam and thoroughly rotted old cow manure, two parts of the former to one of the latter. The manure should be so old as to be black and friable. In such a soil this plant will make a rank, strong growth, and delight you with its vigor and luxuriance, but in a poor soil it will make a slender growth and seem like quite another plant. If you are unable to obtain the rotten manure advised, use bone meal, finely ground, mixing it thoroughly with the loam in the proportion of a tablespoonful to a quart of the latter.

Another item of great importance in the successful cultivation of this plant is water. It likes to drink as well as it likes to eat. In summer time it should be watered liberally every day, and in very hot weather it will be benefited by giving water twice a day. Be sure that every portion of the soil in the pot is reached by each application. If you allow it to get dry at the roots once during the season you are sure to give the plant a check quite similar to that resulting from cramped roots, and these checks must be avoided if you would grow your plants well. Make sure to prevent them by giving daily attention.

Some persons put their plants in the ground during summer. If this is done they will make a stronger growth than can be expected from them

when kept in pots, but when one comes to lift and pot them in fall much of this summer growth will be sacrificed necessarily, and the plant gets a check at the very time when development ought to be going on rapidly. Buds will begin to form about this time, and disturbance of the roots will seriously interfere with this process. Therefore I would advise keeping your plants in pots throughout the season, as it is much easier to keep them making steady progress when this is done.

The chrysanthemum is a most tractable plant, and can be grown as a tree, or in bush form. If you prefer the tree form, begin with the plant when young, and encourage it to make a straight growth to a height of about three feet. Allow but one stem to grow, and keep branches from forming. When the height desired is reached nip off the top. Branches will probably start all along the stalk, but all of these except five or six near its extremity should be removed. Allow those you leave to make a few inches of growth, and then pinch off the ends of them. This causes other branches to form at the head of the plant, and by persistent pinching you can force it to develop a thick, bushy top. Tie the main stalk to a stout stake, as the plant is easily broken if not well supported, especially when top-heavy, as a specimen trained in true form is likely to be.

Personally, I prefer the bush form, because it seems to be more natural to the plant, and a specimen grown in this shape is more graceful in every way. To secure a fine specimen but little pinching back or training of any sort will be necessary. Let branches form about the base of the plant, and allow as many to remain as you think necessary to furnish the amount of flowering surface you would like. You will get a good many more flowers from a plant trained in this form than from a tree-shaped plant.

A great deal is said each season at the flower-shows and in the floriculture periodicals about disbudding. By this is meant the removal of most of the buds which form. In order to get the immense flowers we see at the fall exhibitions it is necessary to allow but few buds to develop. But the result is a flower that is a monstrosity. It has outgrown the limit of beauty. I would never advise those who love flowers for their own sweet sakes to attempt to grow this kind of chrysanthemum. It is making a flower that was meant to be admired for its beauty into a floral freak. We look upon it as we would on any other curiosity, and wonder takes the place of admiration. Leave this branch of chrysanthemum culture to the florists who have an ambition to excel each other in any way that will attract the attention of the public and thereby advertise them and their

business, and be content to grow your plants in such a manner as to have fine flowers of ordinary size and as many of them as possible.

I am often asked to name the best varieties. I always refuse to attempt doing this, because it is an almost impossible task. There are so many fine sorts that it is difficult to say which the best ones really are. It is largely a question of personal taste. I would select the kinds that suit me best, and, by so doing, overlook other kinds another person might prefer to those I had chosen. I would advise the amateur who desires to form a collection of really fine sorts to study the catalogues of the leading florists, and select therefrom varieties of the colors he likes best. In this way he will be likely to suit himself, and if he fails to suit his neighbor whose tastes are unlike his, it does not matter.

As a general thing the Chinese sorts will be found more satisfactory than the Japanese, because they have more regularity of form. But some of the fluffy, tasselly, utterly informal Japanese sorts are wonderfully attractive, and all collections should include a few of them.

CHAPTER X

BEGONIAS

ONE of the most popular of house-plants is the begonia. And its popularity is well deserved. It is beautiful in flower and foliage. It grows well under circumstances unfavorable to the satisfactory development of many plants, and does not require more care and attention than the owner of a window-garden can easily give it.

There are so many varieties in general cultivation at the present time that no collection of ordinary size can include more than a very few of the most desirable sorts. One should have a greenhouse if one would accommodate the leading representatives of this most delightful family of plants.

It is impossible to say which class is most popular—the flowering or the ornamental-leaved sorts. All collections should have a few of each.

The following varieties will be found among the best of the flowering section :

RUBRA.—A magnificent plant when well grown. Its foliage is beautiful, of a rich dark green, with

smooth, glossy surface. Its flowers, which are produced in great profusion the year round, are a shining coral-red, borne in large, spreading, drooping panicles. One of the very best of all house-plants. No collection, however small, should be without this queen of begonias.

WELTONIENSIS.—A lovely variety, with foliage of rich, satiny texture, green, veined on lower side with crimson; flowers soft rose-color, produced in enormous quantities. One of the most desirable kinds.

VERNON.—Excellent; rich red flowers; a great bloomer.

GLOIRE DE LORRAINE.—Another superb sort, with flowers in such profusion that the plant is almost covered with them; of fine habit of growth; rosy carmine.

WASHINGTONIANA.—Pure white; fine for contrast with the darker sorts.

PRESIDENT CARNOT.—Of strong growth; foliage very large; flowers like those of rubra, but larger.

ROSÆFLORA.—A free-growing, free-flowering sort, with an abundance of pale pink flowers.

For descriptions of other flowering varieties the reader is referred to the catalogues of the florists.

Among the most desirable of the ornamental

leaved class—for general cultivation—the following deserve especial mention :

METALLICA.—A strong-growing sort with leaves of bronze-green above, heavily veined and shaded below with dark red. A charming variety to grow where the light can be seen through the foliage.

OLBIA.—Olive-green foliage, with dark veins and silvery white markings. Also a good bloomer, having flowers of white tinted with lemon.

ARGENTEA GUTTATA.—A lovely sort ; foliage of olive shaded with bronze and red, thickly spotted with silver ; a very strong, sturdy grower, branching freely, and becoming a good-sized plant in a short time ; flowers pale, pearly rose.

MANICATA AUREA.—Of drooping habit ; foliage very large, and thick and heavy in texture, of a rich green, heavily blotched, marbled, and spotted with white, cream, and delicate rose. Excellent for a jardiniere.

The rex begonias are always admired when seen in greenhouses, but they are not adapted to culture in the living-room. The temperature usually prevailing there is too dry and warm.

The tuberous begonia is a charming summer flower, but must be allowed to rest in winter. Tubers should be potted in March and dried off in

November. Keep them in their pots, in a warm place, over winter. No plant with which I am familiar is able to furnish a richer show of color than this. It comes in all shades of red, crimson, scarlet, and rose, and ranges from dark maroon to rich yellow and pure white. Some are double, some single—all beautiful. With gloxinias, fuchsias and these begonias, one can make the window-garden a show of vivid color the entire summer.

To grow tuberous begonias to perfection give them a soil made up wholly of leaf mold. Use about six-inch pots, and see that they never suffer for water at the roots, but provide good drainage to make sure that no injury from over-watering can result. Keep them in a light place, but out of strong sunshine. Their stalks are very brittle and easily broken; therefore tie them to neat little stakes, or use wire rods of small size. In October the plant will generally begin to show signs of a desire to rest by their foliage turning yellow and falling off. Then decrease the supply of water until the soil in the pot is quite dry. As soon as the stalks fall off withhold water entirely, and set the pots away in some place where the frost cannot penetrate. In March shake the tubers out of the soil and repot them. Water moderately until growth begins, then as development increases water more freely.

The other begonias mentioned in this chapter will flourish in a soil of leaf-mold and loam, rendered porous with sand. If you cannot get leaf-mold, use turfy matter, as advised in the chapter on soil. Make sure, always, to have good drainage.

Begonias never do their best in a window where they get the hot sunshine of summer. They like an eastern exposure better than any other. I would undertake to grow them in shade rather than in strong sunshine. In a very light but sunless window they bloom well, but their flowers lack the rich color which they have when given the sunshine of the early part of the day, or that of midday, tempered by partial shade, as furnished by vines outside, or other plants between them and the glass.

The begonia is admirably adapted for window-culture, because it is one of the few plants seldom troubled by insects. Once in a while the mealy-bug attacks it, but a prompt application of an infusion of fir-tree oil soap routs the pest.

CHAPTER XI

THE ABUTILON, THE LANTANA, AND THE HELIOTROPE

THE abutilon, popularly known as flowering maple, because of the resemblance of its foliage to the leaf of the tree of that name, is one of the most easily cultivated plants we have. It grows well with the same care and attention given the geranium. It blooms during the greater part of the year. Its flowers are pendulous and bell-shaped, hence another of its popular names, Chinese bell-flower. Its foliage is very bright and pleasing, and a specimen in full bloom, with its myriad flowers hanging from the long branches, beneath the overlapping foliage, is always sure to be greatly admired. It grows with greatest ease from cuttings. Not one in fifty will fail to take root in sand. The best varieties are :

BOULE DE NEIGE.—Pure white.

GOLDEN FLEECE.—Bright yellow.

DEFIANCE.—Rich scarlet.

ROSÆFLORUM.—Rose color.

It can be grown as a shrub or as a small tree. Choose which form you like best, and give the train-

ing advised for the chrysanthemum to bring about the desired result.

This plant is seldom troubled by insects of any kind, and is, therefore, a general favorite with the amateur florist. A large specimen can be grown in a single season. Old plants attain a size equal to that of the oleander, and one will often completely fill a bay window. When it becomes too large for the place in which it is kept, the limbs of the top can be cut back to within eight or ten inches of the crown, or head, of the plant, and a new growth will very soon result. In this way the plant can be renewed from year to year. Large plants will require pots or tubs of good size.

There are several varieties having ornamental foliage, all of which are very desirable :

ECLIPSE.—Leaves strikingly marbled with yellow ; very fine for bracket use, as it is of drooping habit ; excellent.

SOUVENIR DE BONN.—Upright grower, with foliage edged and marbled with ivory white ; a fine decorative plant.

THOMPSONII.—A variety with golden variegation ; also a fine bloomer—flowers yellow, veined with red.

The lantana has long been popular as a bedding plant, but it has not been grown indoors to any great

extent. It is richly deserving of a place in every collection, as it blossoms profusely throughout the entire winter. The individual flowers are small, but they are borne in trusses of such size that they produce a very showy effect. Give the treatment advised for the geranium. Pinch young plants back while small, to make them bushy. Do not neglect to do this if you want a well-formed specimen. Left to train itself, the lantana generally grows in straggling shape, and makes itself more noticeable for awkwardness than for grace. The following varieties are very fine :

CYCLIST.—Rose, with lemon eye.

DOMREMY.—Canary yellow, changing to orange.

SNOWBALL.—White, with yellow eye; beautiful.

FAVORI.—Light buff, changing to pure white.

EMILE BAYARD.—Orange crimson; free bloomer.

Old plants can be cut back year after year and renewed, as advised for the abutilon.

The heliotrope is not a showy flower. Its color is too subdued to make it a rival of such flowers as the geranium. But it is a beautiful flower, and its exquisite fragrance makes it a favorite among all who care for something more than mere brilliance. It is an excellent winter bloomer, if not allowed to bloom during summer. To grow it to perfection give it a

soil containing chiefly loam and sand, well fertilized. It must have considerable root room, and great care must be taken to see that it never gets dry at its roots. It has a great quantity of very fine roots which enables it to make use of large amounts of water daily, and the amount that would be ample to supply the needs of a good-sized geranium would be entirely inadequate to supply the needs of this plant. Allow it to become pot-bound, or to get dry, and the leaves will soon begin to turn brown at their tips, and probably most of them will fall off. Guard against any happening of this sort. Aim to keep the plant going steadily ahead from the time when you start it, in March or April, to the season of winter flowering. Two or three shifts will be necessary during the season. Use enough sand to make the loam very open and light. Give the plant a sunny window. It is of tropical origin, and can stand more strong sunshine than almost any other adapted to window culture. It is very easily grown from cuttings. The leading varieties are a dark violet blue, and a purplish lavender.

CHAPTER XII

THE CALLA, THE AGAPANTHUS, AND THE GLOXINIA

EVERYBODY admires the calla, with its wealth of tropical foliage and its great trumpet-shaped flowers, as the spathe surrounding the spadix on which the flowers proper are borne, is called. It is a stately plant, and one that adds greatly to the attractiveness of any collection. But a great many persons fail to succeed with it. Some get plenty of foliage, but no flowers. Others fail to do even this.

I have found the culture of this plant very simple. I never fail to grow it well if I give it a soil composed largely of leaf-mold mixed with mucky matter from the edges of ponds. With this I mix some sand. I provide good drainage for the pot, for, though the calla is aquatic in its nature, it does not like stagnant water at its roots. Keep the soil wet; but do this by applying water frequently, rather than by confining it about the roots of the plant. I have seen it grown in water-tight stone jars, the owner believing that it was impossible to grow it in any other way. An examination of its roots, when grown under these conditions, almost always showed

them to be diseased. Stagnant water is pretty sure to induce decay, and when this sets in the plant will not flourish. But where the soil is kept wet by repeated applications of water, there is no danger of this kind to be anticipated, as all surplus water runs off readily. I make it a point to have the drainage as perfect as possible. The result is, I have never had an instance of souring of the soil, no matter how frequently, or in what quantities water was applied.

A year-old plant cannot be expected to do much in the way of flowering. It has not reached the right stage of development. A plant must be at least two years old before it will bloom much.

In June I put my plants out of doors. I leave them in their pots. These pots I turn on their sides, under a tree, or in some corner, where they will be out of the way, and there I leave them until September. They receive no attention whatever. As a consequence the old leaves fall off, and when the time comes to repot the plant you will not feel sure you have one to repot until you dig away the hard, dry soil and come upon the tuber, which, notwithstanding the parched condition of the soil containing it, will generally be found plump and sound. Put this in the soil recommended for it and water it moderately until young leaves appear. Then give

water freely. Soon a luxuriant growth will take place—one vastly more luxuriant and healthy than is ever seen from plants kept growing throughout the season. And later on the owner will be delighted with flowers of such size and beauty as never reward the hopes of the person who grows the calla as he grows a geranium.

There are two good reasons for growing this plant as I advise. One is, it must have a resting spell. If you refuse to give it this it will never be in a high condition of vigor. The other reason is, it is a treatment that imitates the condition under which the plant grows in its native habitat. We get it from Egypt. There it grows along the Nile. In spring the lands bordering on the river are flooded, and in the wet alluvial soil the calla makes its yearly growth. When the water subsides, the hot season parches the soil about the plant, and for months it is apparently dead. But the return of the wet season again starts it into renewed growth.

When the calla shows signs of flowering it is a good plan to give it a weekly application of some reliable fertilizer. If this is done, the plant will continue to bloom throughout the season. Old strong plants, having three or four tubers with flowering crowns, will often have two or three blossoms at the same time. Such a plant is a "thing of beauty"

which one would like to have "last forever." Do not remove all the offsets that start about the main root, as these furnish small foliage, which adds to the attractiveness of the plant.

Several varieties of calla are advertised by the florists. But there is only one really satisfactory kind, and that is calla æthiopica, the old, well-known "lily of the Nile." The plant, however, is in no sense a lily. It belongs to the family of which our native arum, known by the children as "Jack-in-the-pulpit," is a well-known representative. The "little gem" calla, so widely advertised, might more appropriately have been called "little fraud," for it has humbugged a great many persons. It is a poor bloomer, and its flowers are inferior. *C. hastata*, advertised as the "yellow calla," is valuable only as a novelty. The same can be said of the "black calla." Neither are worth the room they would occupy in the window garden. The old variety is the only one worth growing.

The agapanthus is a plant not often seen in the ordinary window garden. But it deserves a place there, and it would have it were its merits more generally known. It is not a bulbous plant, although its foliage closely resembles that of the amaryllis. It has thick, fleshy, half-tuberous roots, which thrust their crowns above the soil and throw up from their

apex large quantities of foliage, and at the proper season, flower stalks three and four feet high, crowned with a great cluster of lavender-blue flowers. There are often as many as fifty, sixty, or seventy blossoms in each cluster. These are about two and a half inches in length, shaped like the Bermuda lily, and borne at the extremity of a stem starting from the common centre. Down the middle of each petal runs a lavender stripe, darker than the rest of the flower. The plant blooms in June of each year, as a general thing, and its flowers last for six weeks or two months. A large, fine specimen, with four or five flower stalks, is a magnificent ornament for the porch or the parlor.

The plant succeeds in common loam. It likes a good deal of water while growing actively, and must have a good deal of pot room. If this is not given, it frequently cracks the stoutest pot by the enormous pressure of its strong roots. After it blooms and has completed its annual growth, reduce the supply of water, but never allow the plant to get dry. It is what is called an "evergreen" among plants of this class; that is, it always keeps growing more or less, and on this account it is not advisable to put it in the cellar in the winter, as this would give it somewhat of a check at the time when it is getting ready to send up its annual crop of flowers.

I have elsewhere spoken of the desirability of the gloxinia for summer use. It is rich in color, and its color range is wide. From darkest scarlet it runs the gamut of red to palest rose, and from royal purple it shades off into lilac and mauve to purest white. Some varieties show a white throat, while the rest of the flower is of solid color. Other varieties are edged with pure white, while some are heavily spotted and freckled with contrasting colors. The flowers are tubular in shape, with a flare at the outer extremity. They are produced on short stems sent up from the centre of the mass of leaves which often completely cover the pot. A strong plant will often have six or eight flowers at a time. Such a specimen is a most attractive ornament to the window—something of which the amateur florist may justly be proud.

But not all amateurs succeed with this plant. On the contrary, the majority of them fail. But success with it is reasonably certain if the following directions are carefully observed:

For soil, use leaf-mold or turfy matter, with a generous mixture of sand.

Drain the pots well. If the soil is not drained, decay often sets in at the base of the bulb, and when this happens its usefulness is at an end. Be sure to take such precautions as will prevent it.

Keep the plants out of the hot sun. If you cannot give them early morning sunshine, do not give them any.

Never allow water to fall upon the foliage. Like all other plants having a thick, hairy leaf, it is injured by moisture in condensed form. It likes a moist atmosphere, but the moisture must be in the atmosphere and not on the plant.

The gloxinia blooms well along into fall. Then it begins to yield few flowers, and these will be inferior in size. Soon the foliage takes on a rusty look and turns yellow. In this way it gives you to understand that it is getting tired of its long, hard work throughout the season, and wants to rest. Gradually lessen the supply of water. When the leaves have ripened and fallen off allow the soil in the pots to become dry. Put them away in a warm, dry place to remain during winter, and leave them there until spring. Then bring them out, shake the tubers out of the old soil, repot them, and start them into growth again.

CHAPTER XIII

SALVIA, JASMINE, AND OLEANDER

THE scarlet salvia—*S. splendens*—is an excellent plant for the window garden if one is careful to keep the red spider from it. Unless this is done it is soon spoiled. It should have a rich, loamy soil. It likes considerable water while growing. A weekly application of some good fertilizer is of great benefit after it begins to bloom. It sends up great spikes of peculiarly-shaped flowers of the richest scarlet. It is as intense in color as the lobelia, or cardinal flower found growing along our western rivers. Its foliage is a rich green, and the contrast of leaf and flower is fine and strong. It blooms with great freedom throughout the entire winter. In spring make cuttings of the smaller branches to furnish plants for the decoration of the out-door garden next summer. They root readily in sand. Cutting the plant back from time to time makes it bloom more profusely, as this treatment leads to the production of branches, and each branch is terminated with a spike of flowers as a general thing. It is hard to find a more brilliant and showy plant for the decora-

tion of the winter window-garden, or the greenhouse. Be very sure to shower it all over daily, taking especial pains to get the water where it will do the most good—on the under side of the leaves.

There are four varieties of jasmine suitable for culture in the window :

JASMINE REVOLUTUM, climbing in habit, with golden-yellow flowers.

JASMINE GRANDIFLORUM, also a climber, with pure white flowers.

JASMINE AURANTIACUM, of shrubby habit, with yellow flowers.

JASMINE PARQUI, the popular "night-blooming jasmine," with greenish-yellow flowers. This sort is not particularly fine as to color, but it gives off a very rich and powerful odor at night, when its flowers open, and on this account it is a general favorite. This, and the preceding variety mentioned, makes a fine, bushy specimen of four or five feet in height. The two sorts first named must be grown in large pots. They are not what might be called rampant growers, but will easily reach to the top of a window. They are of most delicious fragrance. One or two blossoms emit an odor sufficiently strong to fill a room. A large number of them give an overpowering odor.

To grow these plants well pot them in rich, sandy loam. Water freely when they are growing rapidly. When growth ceases water moderately. Cut them back well after each flowering period. If they bloom in summer keep them in the cellar over winter.

The oleander is everybody's favorite. A large plant of it, grown in symmetrical form, is a lovely sight when covered with its wealth of rose-colored flowers. Each flower is almost a substitute for a rose when seen at a little distance.

This plant likes a sandy soil. It also likes a great deal of water when making its strongest growth, which is generally in spring and the early part of summer. You can hardly give too much. It has enormous quantities of very fine roots, and these enable it to drink up water from the soil with great rapidity.

If you begin right with a young plant you can make it assume a symmetrical shape with very little trouble. Let it grow to a height of about three feet, then nip off the top. Generally three branches will start near the extremity of the stalk. Allow these to grow until they are six or eight inches long. Then nip off the ends of them. Branches will start from their extremities. In this way you form the foundation for a head of good shape, and you will have all the branches necessary to give you a thick,

compact plant after the third or fourth pinching. After the plant begins to bloom it will not be necessary to do much pruning, as branches will start below each cluster of flowers, the same as if the end had been nipped off. In fall let the soil dry out considerably, and in November put the plant into the cellar, to remain over winter.

CHAPTER XIV

ROSES, CARNATIONS, AND HYDRANGEA

As a general thing, the amateur florist will find the rose one of the most difficult of all flowers to cultivate successfully in the house. If there is a red spider or a green louse anywhere about, it will be sure to take up its abode on this plant. And these enemies, unless fought most persistently and thoroughly, will soon rob the plant of its vitality. The only way to get the advantage of them is to take the plant in hand while young and small, and give it such care as will prevent the pests from getting any foothold on it. In this way you can make them understand that no compromise will be made with them, and after a time they will get discouraged and withdraw their forces. But you must be watchful, and act every day as if you expected the attack of the spider and the aphid to-morrow. It is a good plan always for the grower of flowers to act on the offensive rather than the defensive. Don't wait for insects to put in an appearance. Make it so uncomfortable for them that they will not care to attempt to establish themselves among your

plants. Bear in mind that it is a great deal easier to keep them away than it is to get rid of them after they have once taken possession of your plant.

To head off the red spider from your roses, dip the plants daily in water, allowing them to remain submerged for a minute or two. To drive away the aphids, dip them in a decoction of tobacco. Or you can make one bath answer both purposes if given regularly. If you succeed in keeping your plants free from these enemies there is no reason why you should not have roses in winter, provided your plants have been properly treated during the summer, and the air of the room in which you keep them is not too hot and dry.

Get year-old plants in spring, and put them in five or six-inch pots. Use a soil made up largely of clay or clayey loam. It must be heavy enough to pack about the roots firmly. A rose will not do well in a pot of light, open, spongy soil. It insists on a soil that retains moisture well, and never allows the plant to get loose. In potting, see that this soil is made firm and compact about the plant. Water moderately. As soon as new growth begins, cut away most of the top the plant had when received. By and by cut back this new growth. On no account allow the plant to bloom. In fall you will have, if this treatment has been kept up steadily all summer,

a plant with a number of stubs instead of branches but these stubs will be well set with plump-looking buds, which are only waiting to be allowed to develop into stout, healthy branches, each one of which will generally bear from two to half a dozen flowers. If the old pot is filled with roots, repot the plant in October. A seven-inch pot will be quite large enough for a two-year-old rose.

Begin the preventive treatment I have advised as soon as your plant is brought into the house. While out of doors, in summer, such treatment may not be necessary. Aim to keep the temperature as near 65° as possible by day and 10° lower at night. Such a temperature, I am well aware, cannot be secured in the ordinary living-room. It is therefore advisable to keep your roses in some room opening off the room in which a fire is kept. Let them have all the fresh air and sunshine possible.

In January they ought to begin to bloom. Cut away each flower as soon as it begins to fade. When all the flowers on a branch have developed, cut the branch back, at once, to some strong bud. Keep the soil rich. This will stimulate constant development, and as long as the plant produces branches it will continue to bloom.

The following sorts are most satisfactory for house culture :

AGRIPPINA.—Dark crimson; very fine.

QUEEN'S SCARLET.—An improved agrippina; the flower is larger; the color is the same.

HERMOSA.—One of the most constant varieties; very floriferous; color, bright rose; very fine.

ETOILE DE LYON.—Creamy yellow; beautiful.

CLOTHILDE SOUPERT.—A polyantha rose; a wonderful bloomer; flowers small, but borne in large clusters; color, soft pink, passing to pearly white at the edge of the petal; very fragrant.

SUNSET.—Fawn color, shaded with golden and copper tints; a most lovely rose.

There are other varieties equal, or superior, to these in beauty, but none that adapt themselves more readily to the conditions which generally prevail in the living-room.

The carnation, the "divine flower," is one of the rose's most formidable rivals. It is not only beautiful in form and color, but it is so deliciously fragrant that its spicy sweetness is a source of constant delight of which we never tire.

Like the rose, it is somewhat difficult to grow well in the house, but this can be done by the lover of flowers, for such a person will be willing to take particular pains to suit its requirements. The red spider and the aphid like to live upon its juices, therefore

the treatment advised for the rose should be followed in its cultivation.

It likes a soil of loam, with but little sand in it. It does not require a large pot for the first six or eight months of its growth. Then one of seven inches will be large enough to accommodate a well developed plant. Only a moderate amount of water will be required. I would advise keeping plants intended for winter use in pots during the summer. If a tendency is shown to throw up flower-stalks, cut them off promptly. Make the plant bushy and compact by causing it to send out a mass of shoots near its crown. This it will do if you steadily refuse to let it blossom.

Keep it in a cool room, if possible. It will do better in a temperature of 55° or 60° than in a higher one.

The following varieties are all good, and comprise the most popular sorts :

MRS. GEO. M. BRADT.—A “fancy” variety; color, white, striped with scarlet; of good size, and a free bloomer.

MAJOR PINGREE.—Lemon yellow, marked with pink and white; of strong habit; very floriferous.

FLORA HILL.—Pure white; a very superior sort.

MORELLO.—Bright scarlet.

TIDAL WAVE.—A lovely flower, of a soft, delicate pink; one of the freest bloomers of the list.

PORTIA.—An old favorite; color a most intense scarlet; excellent.

ARMAZINDA.—Pure white, penciled with scarlet; exquisitely fragrant; strong grower and free bloomer.

The hydrangea is too well known to need any special description. It is one of those plants for which we form a friendship, and an old specimen seems almost like one of the family. In New England, one often sees bushes four and five feet high, and as many feet across, completely covered in summer with enormous clusters of rosy flowers, which, later on, change to a pale green. Often these clusters will be ten inches or more across and contain hundreds of small flowers. They are very lasting, and often remain upon the plant for months. Indeed, it is generally necessary to cut them off.

This plant likes a rich soil and plenty of room for its roots. It must be watered well while growing, and should be liberally fertilized to make its growth strong and healthy. It generally completes its growth by September. After that water sparingly. In November, put it into the cellar, giving it only enough water to keep it from shedding its foliage. In February, bring it to the light. In a short time it will

begin to grow. Soon its buds will appear, and by May it will begin to bloom. It should be cut back to symmetrical shape when growth is being made. After that, no pruning should be done, as it will have formed buds for next spring's work, and to cut away its branches at this time would seriously interfere with the development of the plant early in the season. No insect ever troubles this plant, and on this account it is a favorite with all lovers of flowers. One does not have to fight for success with it, as in the case of the rose and carnation.

CHAPTER XV

THE PRIMROSE, THE PRIMULA, AND PLUMBAGO

ONE of the most satisfactory of all house-plants is the Chinese primrose. It requires only an ordinary amount of care. It is a very free and constant bloomer, and it is very beautiful. In color it ranges from pure white to dark crimson. There are double, semi-double, and single varieties. All are lovely flowers.

There is one important point that must be observed in the culture of this flower. If potted low, that is, with the crown below the level of the soil in the pot, water will run in and stand there too long for the good of the plant before it is absorbed by the soil. This induces decay, and a plant is seldom able to recuperate after this sets in. Therefore, set the plant rather high in its pot. Have the soil around it slope towards the edge of the pot, so that water, when applied in quantity, will run away from the crown, instead of collecting about it.

Another item of great importance is this: Never put young plants in large pots. Six-months-old seedlings should not have pots more than three or

four inches across the top. Keep them in these until the soil is full of roots. Then shift to a six-inch pot, which will be quite large enough for the plant when blooming. This plant does not have many or large roots, and it is made dyspeptic by putting it in a pot containing more soil than it can make use of. Its flowers are about the size of a silver quarter as a general thing. Some are as large as a half dollar. They are borne in clusters of ten or twenty in stems four or five inches tall, just tall enough to lift them well above the foliage. Not all the flowers in a cluster are developed at one time. They come on in successive stages, and thus the flowering period of each stalk is prolonged for a month or more. Often there will be three or four stalks of bloom at one time, with more coming. Perhaps the double white variety is most popular. I do not regard it so desirable, all things considered, as the single sorts, as these show a beautiful lemon-yellow centre, or "eye," which the fully double varieties do not. The effect of this "eye," when seen in a white or colored flower, is charming, and more than makes up for the lack of petals in the single sorts. There are always enough of these to make the flower perfectly circular in form. As a general thing the edges of them are fringed or notched. This plant is easily grown from seed. If

you want the double white variety, however, you must order it from a florist, as you can never make sure of getting what you want when you grow your plants from seed. Never shower this plant. Its soft, downy leaves are always injured if water stands on them in drops.

Primula obconica is a plant of the primrose family. It has smaller flowers, of white or pearly lilac, with lemon eye. These are freely produced on long and slender stems, at all seasons of the year. It is really a perpetual bloomer, but plants intended for winter use should not be allowed to exhaust themselves by summer flowering. It requires a great deal of water, as it has great quantities of very fine roots. The mealy-bug is pretty sure to attack it if you are not on the lookout for the pest. Shower it weekly with an infusion of fir-tree oil soap, taking care to have it get down among the leaves, for there is where the bug will attempt to establish himself. This flower is a general favorite because it has a sort of wildwood look and habit. It is easily grown from seed, or by division of the roots.

The plumbago is a comparatively unknown flower in many localities. But it would be grown everywhere if its merits were fully known. It is of the very easiest culture. It flourishes in almost any soil. About the only special treatment it requires is

that of a severe and systematic cutting-back as soon as its branches have developed the flowers which terminate them. Cut each branch back to within three or four inches of the main stalk. In a very short time a new branch will be sent out, and this will bear flowers. Keep the plant producing branches and you keep it blooming. In order to facilitate the production of these branches, without which you will have no flowers, as they are borne only on new growth, keep the soil well fertilized. The blossoms are shaped like those of the annual phlox, and are of about the same size. They are borne in loose spikes. In color they are a delicate lavender blue—a rare color among flowers. The plant often grows to be six or eight feet high, with many side branches. Being of rather slender habit, it may need support of some kind. A large specimen in full bloom is extremely beautiful, especially if grown alongside white or rose-colored flowers. It is very hard to make grow from cuttings. A surer way to propagate it is by layering. Bend down a half-ripened branch, half-breaking it at the point where you put it into the soil. Fasten it firmly in place with sticks. Leave it until you are sure roots have formed. Then cut away its connection with the parent plant, and pot it, being careful not to break the delicate roots.

CHAPTER XVI

THE AMARYLLIS, IMANTOPHYLLUM, AND VALLOTTA

THE amaryllis is a superb flower, but because the nature of the plant is not understood most amateurs generally fail with it. Learn to know the plant and its requirements, and you need not fear to undertake the culture of it.

It has alternate periods of growth and rest. These should each be made as complete as possible. That is, when growth is going on, encourage the plant to full and free development. When this is completed, treat the plant in such a manner that rest will be as complete as growth was. As a general thing it is kept growing all the time, in a sort of indifferent, utterly unsatisfactory way, because water is applied regularly. This is where the mistake is made.

As long as foliage is produced the water-supply should be kept up. When it ceases to send up leaves, cut off this supply and give just enough to prevent the soil from getting dry. Keep up this treatment until the plant shows signs of renewal of growth. Generally the first indication of this will be the sending up of a flower stalk, after which

leaves will be produced. At this time apply fertilizers regularly, and do all you can to make the work of the plant successful in the highest degree. Future success depends to a great extent upon the care the plant gets at this stage of its existence. If neglected it probably will fail to give you flowers at its next period of growth. If well fed and watered, it will store up in the bulb the strength and energy which will be manifested in flowers later on. The plant under ordinary treatment is not encouraged to grow well when it tries to grow, and it is not allowed to rest when it wants to do so, and the result is, in nine cases out of ten, a non-flowering plant. Treat it as I have advised, and I venture the prediction that your failures will give place to success.

It likes a rich soil. One of loam into which at least a third its bulk in old, black cow manure is mixed, will grow it to perfection. Set the bulb about half its depth in the soil. Allow two or three bulbs to form about the old one. After that remove the offsets promptly.

Never disturb the amaryllis unless absolutely necessary to do so. Any interference with its roots is resented, and it will usually refuse to bloom for some months after this takes place. If necessary to repot it, do so very carefully, removing only as much of the old soil as will freely crumble away from

about the roots of the plant. Set the bulbs in their new pot, and sift in the fresh soil about them, settling it by the liberal application of water, rather than by pressing it down with the hand. Never put the amaryllis in the cellar. It is likely to be too cold and damp there.

There are several varieties, all good. The standard sort is *Johnsonii*, scarlet striped with greenish white. *Equestre*, rosy crimson, is another very fine variety. A strong bulb should send up a stalk nearly three feet high, and bear from three to six flowers. Such a plant, when in bloom, is a most beautiful object, and one of which any one may well be proud.

The *imantophyllum* is a plant not often seen outside the greenhouse, but it deserves a place in the window garden, because it will flourish there much better than many plants considered appropriate for the place. It is not a bulbous plant, but its leaves and flowers are so similar to those of many bulbous plants that one is only convinced of the nature of it by examination. Dig down into the soil about it and you will find that it has a thick, fleshy root, quite similar to that of the *agapanthus*. It is propagated by division of these roots. It should have precisely the same treatment as that advised for the *agapanthus*. Its flowers are produced on stalks about a foot in height. There are generally from six to a dozen

in a cluster. In color they are an orange-red, with a light stripe down the centre of the petal. They are shaped like a lily.

The Vallotta, or Scarborough lily, is one of the old favorites of which we cannot afford to lose sight. It is a fall bloomer. It seldom fails to bloom in August and September. Each strong bulb sends up a stalk about a foot high, terminated with five or six lily-shaped flowers of a rich, glowing scarlet. In intensity of color, they surpass any other bulbous flower we have except the tulip. Young bulbs are formed in great quantities about the old ones, and these must be removed each season, if you do not want the strength of the plant to be expended in this direction. Do not repot the old bulbs often, as, like the amaryllis, they resent any disturbance of their roots. In winter, the pot or box in which they grow can be kept in the cellar. Fertilize well during the summer, to get them ready for fall flowering.

CHAPTER XVII

DECORATIVE PLANTS

No collection is considered complete, nowadays, unless it has in it some plants grown because of their beautiful foliage. These plants not only add to the attractive effect of the collection, when used in it, but they are very useful for the decoration of the hall or parlor, and small specimens can be used to advantage on the dinner-table. Such plants have another advantage over those which are grown chiefly for their flowers, because they are "in company dress" at all times.

The ficus, or India-rubber plant, is a general favorite because of its large, thick, glossy foliage. Well-grown specimens will have leaves four or five inches in width and eight or ten inches in length. They are a rich, dark green in color, with a texture as firm, almost, as that of leather. On this account they withstand the bad effects of dry air and dust better than almost any other plant. Give it a soil of loam. Move to new quarters from time to time, as the old pots become filled with roots. Do not try to force growth by making the soil very rich, but

give a weak fertilizer about once a fortnight to keep the plant in vigorous condition. Wash the leaves off weekly; keep in a partially shaded place.

Palms are becoming popular, but there are really but few varieties adapted to home culture. The best of these are:

LATANIA BORBONICA, the well-known fan-palm, with broad foliage; of low, spreading habit.

PHOENIX RECLINATA.—Of freer growth than *latania borbonica*, therefore more desirable. This sort has long leaves, which spread and curve gracefully. One can grow a fine specimen in two years.

ARECA LUTESCENS.—A graceful variety, of upright habit; not as strong a grower as *phoenix reclinata*, but really more suitable for the window on this account.

CHAMÆROPS HUMILIS.—A low-growing, sturdy sort, of great vigor and lasting qualities; one of the best for a jardiniere or low stand; leaves fan-shaped and deeply cleft, and produced in great freedom.

To grow the palm well, it should be given a deep pot, as it delights in sending its roots down rather than spreading out to a great extent, as many plants will do if allowed. Give it a soil of loam.

Never use leaf-mold or any other light, spongy soil. Have good drainage. Water well, but never keep the

soil wet. Keep in a partially-shaded place. Shower the foliage daily. Wash with some insecticide once a month to prevent insects and scale from troubling them. When a plant is used for the decoration of the hall or parlor, do not allow it to remain there for days, but take it back to the light as soon as the occasion that called for its use is over. No plant can be expected to flourish away from the light, and to deprive it of this for any length of time is sure to injure it. Do not attempt to grow the palm from seed. That takes too long. Buy young plants which have a good start, and thus gain a year or two of time.

Dracenas are very ornamental plants when well grown. The best varieties for the amateur are:

INDIVISA.—Dark green, with long, curving foliage.

TERMINALIS.—Broad foliage, shaded with bronze and maroon.

These plants like a soil of leaf-mold and loam. They must be kept quite moist at the roots, and in a warm atmosphere. *Terminalis* must have a very light place in which to grow, in order to bring out the beauty of its coloring.

Aspidistra is, among decorative plants, what the geranium is among flowering plants. It will grow and do well under conditions that would be sure death to many other plants. Give it all the water it

wants and it will get along without any other attention. It flourishes in sunshine and in shade. It does not mind dust, or dry air, and it can stand a good deal of cold. I have seen old plants that had not been repotted for years that were in fine condition. But because of its ability to get along under disadvantages it should not be neglected. Give it good care and it will do so much better that you will consider your labor well paid for. It does well in a loamy soil. Its leaves are borne on stems sent up from the crown, not on branches. They are shaped like those of the lily of the valley, but are several times larger. They are thick and leathery in texture, and of a dark green color. *Aspidistra variegata* has stripes of creamy white, of irregular widths, running the length of the leaf. This is the best variety, and is very ornamental. Propagated easily by division of the roots.

Ferns are not adapted to living-room culture, with the exception of *nephrolepis exaltata*, or sword fern. This sort does well where begonias can be grown successfully. It is a very beautiful plant. It sends up dozens of long, gracefully arching fronds from strong crowns. A fine specimen is a veritable fountain of foliage. It is a good bracket plant, and for the centre of a pyramidal group it is one of the best plants we can grow. The smaller specimens are

excellent for table use. Grow it in leaf mold or turfy matter; water liberally; keep it in shade.

One of the very finest plants of recent introduction, for general decorative purposes, is *asparagus sprengeri*. This variety of *asparagus* is quite unlike *asparagus plumosus* or *asparagus tenuissimus*. It throws up large numbers of strong branches which grow to a length of three, four or five feet, drooping with utmost grace, and completely covering the pot in which it grows with a spring-like mass of dark-green foliage. For mantel decoration we have no plant quite equal to this. It should never be trained to grow up. That is not the natural direction for it. Let it spread out its branches and train itself, and you will find it always a "thing of beauty." Give it a soil of loam and sand, well fertilized. Use a good deal of water while it is making rapid growth, and give it good-sized pots. It is easily propagated by division of its roots, which are half tuberous in character. I cannot too strongly recommend this plant to the attention of the amateur florist. Its requirements are so simple that they are easily complied with, and success is certain to follow the carrying out of the instructions given for its culture. It is excellent for cutting as it lasts well. It is destined to become one of our most popular and useful plants, and will take the place of

smilax and the other varieties of aparagus, which are not very well adapted to general use. It is one of those accommodating plants which can be grown in sunshine or shade, and doesn't expect, or want, to be coaxed. It is excellent for hanging baskets, for use on brackets, or as an edging for the plant-table, which it charmingly drapes with its profusion of fringy foliage.

CHAPTER XVIII

VINES FOR THE WINDOW GARDEN

PERHAPS the best vine to grow in the window garden, all things considered, is the English ivy.

It stands dry air and dust and high temperature and frequent and great changes of temperature as well as the aspidistra. Keep it free from scale and mealy-bug by occasional washings with an infusion of fir-tree oil soap, and its rich, dark green foliage will delight you and form a charming frame for the window at which it grows. Give it a soil of ordinary garden loam. Do not keep its roots wet—simply moist. If possible, give the pot a place near the light, to do away with the danger of souring of the soil, which sometimes takes place when the pot is kept too much in shade. But the plant itself does not require sunshine. It does not seem to care much for a strong light, even, as it sends out its branches near the ceiling, and they appear to be as healthy as those growing nearer the glass. Because of its ability and willingness to flourish in shadier places than other plants can or will, it deserves especial attention, as it can be used by those who have windows

not at all adapted to the cultivation of light-loving plants.

Be sure to keep its foliage clean. It is never pleasing when covered with dust, and it is sure to be injured by such an accumulation, as it closes the pores through which the plant breathes. I would train it along the window-frame and walls on little hooks rather than by fastening it anywhere. If this is done, it is an easy matter to remove the vines for washing, and the chances are that the plant will not be neglected as it quite likely would be if it were so fastened to frame or wall that it was difficult of removal.

The Maderia vine is a rapid grower and its foliage is thick and glossy. It is also a good flowering plant. It blooms in September, bearing a great profusion of small white flowers, of very pleasing fragrance. It is grown from tubers, which should be planted in spring, in pots of rich sandy soil. It requires a good deal of water. It does best in partially shaded windows. In fall, when the vine begins to turn yellow, cut it off and set the pots containing the roots in a cool, dry cellar, where they should be left until spring.

Cobea scandens is a very strong-growing vine. It will soon outgrow a window of ordinary size unless cut back sharply from time to time. This makes it

branch finely and keeps it within bounds. It bears a large, bell-shaped purple flower. *Cobea variegata* has foliage beautifully marked with cream-white and yellow, and is a most attractive plant. No special treatment is required.

The hoya, or wax plant, is a satisfactory vine for a warm window. It has leaves of very thick texture and its flowers are borne in drooping clusters. They are of a pearly flesh color, with a dark, star-shaped growth in the centre, which gives them a peculiarly striking appearance. If you would succeed with this plant disturb its roots as little as possible. Keep it warm in winter and rather dry, unless it should be making growth. In its growing season it needs considerable water. Never remove the little stem on which flowers were produced, as next season new flowers will appear there. Keep the plant free from mealy-bug, which is the only enemy it has so far as I know. It has small roots and will not require a large pot until two or three years old.

CHAPTER XIX

WINDOW-BOXES

To many of the dwellers in the city the window-box is the only available substitute for a flower garden. And many who are not city residents are glad to bring the beauty and fragrance of the garden into a little closer touch with their daily round of duties. Many a tired woman who could not find time, or would be too weary, to visit the garden, is refreshed and cheered by lingering for a moment over a flower in the window. The poor of the cities, whose lives are so barren of beauty and brightness, can gain a little hint of what summer holds for more fortunate people from the window-box garden, which can be constructed so cheaply that all can afford it. Therefore the growing of flowers in boxes outside the window should be encouraged everywhere, not only among the wealthy, but especially among the poorer classes, to whom the luxury of a real flower garden is a thing not to be dreamed of as among the possibilities.

When we plan the window-box we can see in the mind's eye a wealth of bloom and beauty that the future has in store. But this anticipated beauty

is in many instances—in the majority of instances, I feel justified in saying—never realized, and the woman who has hoped to enjoy so much from the box of flowers at her window is sorely disappointed, and wonders why she failed to attain success. “I had good soil,” she tells us, pathetically. “I watered the plants every day. What more could I do? But in less than a month after I had set them out they began to look as if they were sick. Their leaves turned yellow and fell off. They would seem to try to grow, but the young leaves would soon look as if stricken with blight. In six weeks’ time most of them were dead. Was the fault mine? If so, what was wrong in my treatment?”

In nine cases out of ten failure results from lack of sufficient moisture in the soil. It must be borne in mind that a box a foot or more wide, ten or twelve inches in depth, and three or four feet long, contains quite a large amount of soil, and to keep this moist it will be necessary to apply water in liberal quantities in summer. This most persons fail to do. They apply enough to wet the surface of the soil only, and the soil beneath soon becomes almost dust-dry. This explains why plants flourish for a time and then begin to fade. They do well while their roots are in the moist stratum of soil, but as soon as they get through that they fail to find

the moisture they need and must have if development is to go on, and the result is failure.

To grow plants well in window-boxes one of the size I have mentioned should receive not less than a pailful of water daily, and in very hot weather, especially if there are warm winds blowing, more than this will be required.

It will be readily understood that a box of soil exposed on all sides will soon have the moisture extracted from it by the warm air and the sunshine, which cause rapid evaporation. To guard against danger of this kind it is absolutely necessary to use water daily, or oftener, in liberal quantities. Make this the most important rule to follow in taking care of your window-box. If you do not neglect this advice you can grow flowers as successfully in boxes at the window-sill as you do in the pots on your plant table. Make it a part of the daily programme of work among your plants to apply enough every morning or evening to saturate the soil all through, and do not be satisfied unless some runs out through the cracks at the bottom of the box. Never let the moist appearance of the soil deceive you into the belief that sufficient moisture exists below. Make sure of it by frequent examinations. The woman who waters her plants on the "little-and-often" plan argues that they get all they need because the sur-

face of the soil appears to be moist, but her reasoning is a delusion and a snare, as her plants almost invariably show after a little. Water regularly and liberally, and have no fear of injuring plants in window-boxes by over-watering. The danger, bear in mind, is in the opposite direction.

Let the top of your box be on a level with the sill of the window. Be sure to see that it is well supported and fastened in place, for the weight of the earth in it, when damp, is considerable. If climbing vines are used arrange a trellis at each end, reaching to the top of the window, and across it. A still better plan is to have a rack of light wood, or a square frame covered with wire netting, fastened to the top of the window, and extending outward and downward like an awning, with wires, strings, or some similar support, for vines running up to it on each side from the ends of the box at the sill. Such an arrangement not only gives the window a pretty frame of greenery, but the rack or support at the top, will, when covered with vines, afford pleasant shade for the room, and be one of the most attractive features of the entire plan.

Among the plants best adapted to cultivation in window-boxes are: Geraniums, in variety; fuchsias, in variety; heliotropes, plumbagos, begonias, pansies, tea roses.

The above will furnish flowers. The pansies and begonias will flourish admirably in windows having a good deal of shade. The plumbago is a fine plant for the ends of the box, as it reaches to quite a height.

For vines to train up the trellis I would advise: Morning-glories, Maderia vine, cobeá.

To droop over the sides of the box these will be found very satisfactory: *Lysimachia*, moneywort, *othonna*, *vinca*.

For foliage: *Coleus*, *Mad. Sallerói* geranium, *dracæna*, palm, sword fern, *aspidistra*.

The *petunia* and *nasturtium* will also be found useful, both for flowers and for foliage, and they can be trained up the trellis or over the sides of the box, being not at all particular in what direction they go.

The following plants are best for north windows: *Nephrolepis exaltata* (fern), *pteris argyrea* (fern), *adiantum cuneatum* (fern), Maderia vine, *pilogyne suavis*, climber; *tradescantia*, to droop.

In sunny windows, almost any summer-blooming flower can be grown successfully. If you do not happen to have any of the sorts already named, and cannot conveniently obtain them, use whatever is at hand. Last year I saw a window-box filled with ordinary garden weeds. Some children had constructed it at the window of a poor home. The seeds seemed to realize the dignity that had been conferred

upon them, and that at last they had found an opportunity to show what they could do "with half a chance." And how they flourished! They were quite as attractive as some cultivated plants are, and the children evidently enjoyed them. If there are poor people in your neighborhood, give them plants and seeds from your collection, and encourage them to make use of them, the coming summer, in a window-box garden. If a child can enjoy a weed under such conditions, he will be delighted with even the commonest flower, and by giving him one you will be doing a kind deed that costs you but little, but which may exert a powerful influence on the child's future. Be generous with your flowers.

Any box that will hold soil will answer for a window-box. One of pine, costing ten cents for material, will grow plants just as well as a box of tile costing several dollars. Those who cannot afford to buy a box can almost always find something that will answer all purposes, that can be had for the asking. I would be glad to see plants growing in one window at least of every humble home, because I know how much pleasure and brightness the commonest plant is able to bring into our lives.

Be sure to have a window-box, and encourage your neighbors to have one. In a little while, if this were done, every home would have its summer window garden.

CHAPTER XX

HANGING-BASKETS

PLANTS suspended in the window add much to its attractiveness. There is a grace about a trailing plant that few upright growers possess, no matter how common it is. A basket of "Jill-over-the-ground," or of moneywort, weedy though it is, often beautifies a window more than a rare or expensive plant.

But most persons fail to grow plants well in baskets. The reason why they fail is precisely the same as that which leads to failure with the window-box—lack of moisture at the roots of the plants. Because a basket is rather inconvenient to get at, it is often neglected. If water is given irregularly more runs off than runs into the soil, and the result is the same as when wholly neglected. The only way by which basket-plants can be grown well is to make it a point to water them daily, and be sure they get enough to reach all the soil about the roots. I have followed this plan with hanging plants for some time with the best of satisfaction: I suspend the plant by a cord running over a hook in the ceiling.

The end of the cord fastens to a hook about midway of the window-frame. When the plant needs watering, I unfasten the end of the cord and lower the pot, or basket, into a pailful of water, where I leave it until it has taken in all the water it needs. Then it is pulled up, and the cord is fastened to its hook again. If this plan is followed, and the saturation of the soil is complete each time, it will not be necessary to go through with this operation daily, except in very warm, dry weather.

Another plan that works well is this : Take a fruit-can, and punch a small hole in the bottom of it. Fill it with water, and place on the soil in the basket. It can almost always be concealed by the vines growing in the basket. A little experimenting will enable you to make the hole in the can of just the right size to allow the water to run through in the quantity necessary to keep the soil moist.

The othonna is a good basket plant. In some localities it is called "pickle plant," because of the resemblance of its fleshy, cylindrical foliage to a miniature cucumber. It blooms very freely, and its bright yellow flowers, resembling tiny dandelion blossoms, are exceedingly cheerful and attractive.

Tradescantia is good, provided you do not give it so rich a soil that its joints are far apart. If it grows too rapidly it does not have foliage enough to pro-

duce a good effect; therefore give it a rather poor soil. It is well to pinch it back sharply from time to time, to make it branch freely.

The pink oxalis is a charming plant for a basket, with its clover-like foliage and bright, rose-colored flowers, produced in wonderful profusion from November to May. In spring, allow it to rest by withholding water until it gets dry. Let it remain dry until September. Then take the tubers out of the soil and repot in fresh compost of sandy loam and a little finely-ground bone meal.

Moneywort is a strong, rapid grower, and its profuse foliage is always pleasing. The same is true of glechoma, better known as "Jill-over-the-ground," or "creeping Charlie."

Lysimachia is a pretty little plant of free growth. *Saxifraga sarmentosa*, known as "strawberry plant," because of its habit of throwing out runners which produce leaves at their joints, is a very fine plant for a basket. Its leaves are shaped like those of a geranium. They are red below and olive above, spotted with white. The runners hang over the edge of its basket in little festoons of foliage smaller than that of the main plant.

Vinca Harrisonii is fine, with dark green, glossy foliage, edged with clear yellow.

Sweet alyssum makes a good basket-plant for

winter. It will bloom through the entire season if prevented from ripening seed.

The "Little Beauty" fuchsia is very fine for basket use. It droops gracefully, and its charming red and violet flowers are shown to the best possible effect because they are turned towards you as you look up at them.

Asparagus sprengeri, spoken of elsewhere, is one of our very best basket plants.

CHAPTER XXI

A LIST OF MISCELLANEOUS PLANTS ADAPTED TO CULTURE IN THE WINDOW-GARDEN

THE following list includes nearly all the plants suitable for culture in the living-room, which have not been mentioned in the preceding pages:

STREPTOSOLEN.—Orange and red; a very free bloomer; desirable.

PELARGONIUMS, in variety.—Most gorgeously-colored flowers, produced freely in spring; probably no flower excels the pelargoniums in magnificent coloring; from the shape of their flowers, and their peculiar markings, they are often called “pansy geraniums.”

ANTHERICUM.—A plant with beautiful green and white foliage and long spikes of white flowers; of easy culture; a fine plant for general decorative purposes.

AGAVE.—“The century plant;” well adapted to the temperature of the living-room; the best variety is Queen Victoria, with a yellow variegation on the green ground of its thick, succulent foliage.

HIBISCUS, in variety.—Plants with rich, shining foliage and large hollyhock-like flowers, of crimson, scarlet and yellow; summer-bloomer of great merit.

BROWALIA.—A very pretty blue flower; of easy culture.

FARFUGIUM.—A plant with large, circular leaves of a very dark green, spotted with yellow; often called the "leopard plant" because of its spots.

CACTI.—The best of this extensive class of plants, for house culture, are the phyllocactus and the epiphyllum, both fine bloomers.

BOUGAINVILLEA SANDERIANA.—A most charming plant; new; it is shrubby in habit, and its new growth bears scores of insignificant flowers in cup-shaped bracts of bright, rosy crimson; these bracts are more brilliant than most flowers, and they last for months; treat this plant as you would a geranium and you will succeed with it.

CYPERUS ALTERNIFOLIUS.—The "umbrella plant;" excellent for aquariums.

GREVILLEA.—A strong-growing, tree-like plant, with long, finely-cut, fern-like foliage; of very easy culture; excellent for hall or parlor decoration.

JUSTICIA.—A very showy plant, with large heads of pink flowers that last a long time.

AGERATUM.—Fine for winter; flowers fringe-like in appearance, of a soft, delicate blue.

FEVERFEW (*Pyrethrum*).—A charming little plant with fragrant, finely-cut foliage, and flowers of pure white, shaped like small pompon chrysanthemums.

SOLANUM CAPSICASTRUM.—The old "Jerusalem cherry;" a pretty plant for table decoration; foliage dark green; flowers white, succeeded by cherry-like fruit of a brilliant red, which hangs on the plant for months.

CHAPTER XXII

BULBS IN WINTER

IF you are going to endeavor to force bulbs into bloom in the house in winter, get your supply early in the season. Look over the fall catalogues, as they come in, make your selections and send off your order at once. Bulbs should be potted early because bulbs out of the ground part with their vitality rapidly, and those ordered and received late suffer greatly in consequence of this loss.

Bulbs for out-door planting should be set, if possible, by the middle of September, and this rule applies with equal force to bulbs for winter flowering. It is not necessary, as some imagine, to keep the bulbs out of the ground until late in the season in order to secure a late bloom. They are retarded and kept from early flowering, not by late planting, but by holding them back from light, warmth, and other conditions which influence their development. Hence the term "forcing," which means that we take them in hand, and oblige them to bloom at our pleasure at a season when they would be dormant if left to the management of nature. By careful treat-

ment of this kind, it is possible to keep some bulbs almost entirely dormant for a long time, and this enables us to regulate their flowering season to a great extent. We can force them ahead by growing them under stimulating conditions, or hold them in reserve by keeping them under conditions unfavorable to development. The florists have studied this phase of floriculture thoroughly, and it is really wonderful to see how they regulate the growth of these plants in winter.

Having ordered your bulbs, immediately set about getting ready a compost in which to plant them on their arrival.

As good a soil as any is one composed of ordinary garden loam, sand, and well-rotted cow-manure in equal parts.

One-third sand may seem too large a proportion for the loam and manure, but it is not. Nowhere in the world are finer, healthier bulbs grown than in Holland, whose soil is composed of almost clear sand. Better bulbs can be grown in sand alone, properly fertilized, than in the richest of soils without sand.

Mix your compost well. Work it over until it is fine and mellow. It is very important that the manure used is old. Fresh manure is harmful to all bulbous plants, out or in-door.

Bulbs do not require a great deal of root room, therefore, where specimens are grown singly, large pots are unnecessary. I would advise, however, growing several bulbs in the same pot. The effect is more pleasing because of the greater mass of color obtained in a limited space. Three or four hyacinths, tulips, or daffodils can be grown successfully in a seven-inch pot. Half a dozen crocuses or snowdrops will be required to fill a six-inch pot. Three or four average-sized bulbs of the Bermuda lily can be grown in a ten-inch pot. If the largest-sized bulbs are grown, use but one in a seven-inch pot.

Water your bulbs well when you pot them. Then set them at once in the cellar, or wherever you decide to keep them while they are developing roots. The cellar is generally advised, because it is likely to be most convenient, and the conditions generally prevailing there are those most favorable to the bulbs at this stage of their existence. But any place will answer that is cool and dark, or can be made so. An old shed, an over-turned dry-goods box, or a trench in the ground covered with boards, coal ashes, leaves—almost anything to exclude light—will give nearly as good results as a cellar, provided the necessary degree of coolness is secured. Bulbs can be left in such places until cold weather sets in, by which time they ought to be fairly rooted. Slight freezing does

not hurt them, but, in my opinion, hard freezing does. It is not harmful to bulbs in the ground, because its effects are overcome gradually and naturally in spring. I therefore advise removing bulbs put out of doors to form roots to some place free from frost before freezing weather sets in.

Many persons fail to see why it is necessary to pot bulbs and put them away to form roots under the conditions here described. "Why not put them in the window as soon as potted?" they ask. I think I can satisfactorily explain why we do this. When planted the bulb has no working roots. There is nothing, save the vitality stored up in the bulb, to develop or support the development of top growth. In the natural order of things, roots should be formed first. While the weather is cool and there is an absence of light, there is nothing to encourage top growth; but these are precisely the conditions under which newly-planted bulbs form roots, and put themselves in shape for next season's work. When the roots are formed the plant will, at the coming of warm weather, put forth leaves and get ready for flowering. A bulb with strong roots is in a condition to do this work well as soon as you bring it to the light and warmth of the window. But without these roots the development of top growth, which light and warmth would encourage to begin at once,

must naturally be weak, because there is nothing to support it save the vitality in the bulb, which is not sufficient in itself to bring about perfect development. Development of root and top cannot satisfactorily go on at the same time, because the top will be making demands which the roots are not in a condition to meet. But if roots are formed before this demand begins, the plant is in shape to develop healthily when the chance is given to do so. Therefore, if you would grow bulbs well, give them from six weeks to two months in which to make roots before you encourage them to do anything else.

Be sure your plant has made a good growth of roots before you bring it to the window. But it is not necessary to take a plant out of its dark closet as soon as these roots have been formed. It can safely be left there for some time after this if you desire to delay the blooming period. If any persist, as some will, because of exciting conditions which prevailed before they were planted, in putting up flower stalks before there is a satisfactory development of roots, they will have to be brought out of retirement at once, for to leave them in the dark after they have begun to form buds is to incur the danger of blight.

Provide drainage for your bulbs the same as you would for any other plant. Bulbs are really more susceptible to injury from insufficient drainage than

ordinary plants are, and you cannot expect to grow them well if the soil about them is heavy and wet. The young, tender roots become diseased and the result is inferior flowers or none at all.

Set tulips and daffodils so that their crowns will be about an inch below the surface of the soil. Do not quite cover hyacinths.

The Bermuda lily should be planted in deep pots. Put in a shallow layer of soil over the drainage material when you pot bulbs of this plant, and on this place the bulb, which should be just covered lightly. Leave it like this until a stalk starts. Then fill in about this stalk, as it reaches up, until the pot is full or nearly so. This may seem a somewhat strange manner in which to grow a plant, but there is a good reason back of it. While the vital part of a lily is in the bulb, it sends out roots from the stalk which it throws out above the bulb. Therefore, unless the bulb is planted deeply there will be only a thin stratum of soil in which the stalk can put forth these roots, which not only help to feed the plant by drawing nutriment from the soil, but also strengthen and support the stalk by acting as braces to it. Lilies planted with their crown near the surface of the soil will have to be tied to stakes to prevent their being broken off, but deeply planted ones will need no support of this kind. Bear this in mind,

and set your lily bulbs well down in their pots, filling in as the flower-stalk develops if you would grow this most lovely flower to perfection.

I would not advise the use of any fertilizer after bringing a plant to the light, if the compost in which it is planted is ordinarily rich in nutriment. Development is quite likely to be sufficiently rapid in soil of moderate richness. The application of a stimulant will so hasten it that it will be forced beyond a healthy limit.

When you bring up your plants do not place them at once in a warm room. A room adjoining one in which there is a fire is better for them, if it is frost-proof, than one in which the temperature is likely to run up to 65° or 70°.

When in bloom, keep them as cool as possible if you want the flowers to last.

I am often asked to name a selection of bulbs for winter use for those who are not familiar enough with them to make their own selection. This I do not like to do, because my selection would be made along the lines of individual taste, and what pleases me best might not be satisfactory to another. Therefore I think it well to briefly allude to some of the leading characteristics of the bulbs most desirable for forcing, and let each person select for himself.

Tulips have large flowers, of many colors, some of

them exceedingly rich and brilliant. They produce but one flower to a bulb. This will be on a stalk six or eight inches tall. The single sorts are best for forcing.

Hyacinths of the ordinary class send up but one flower-spike from each bulb, but that spike, which will be from six to eight inches in height, will be clothed with bloom nearly its entire length, therefore the effect produced is much more satisfactory, where a mass of color is desired, than that of the tulip. The single hyacinths are preferable to the double ones, as their flowers are smaller, and do not crowd each other so as to obliterate their individuality, as the double sorts are likely to do.

Roman hyacinths send up several stalks from the same bulb. Their flowers, which are single, are loosely arrayed along the stem, and are really the most graceful of any of the family. They come in white, pink, blue, and pale yellow. The ordinary hyacinth of the garden has a wider range of color. All hyacinths are very fragrant, and as they are of the easiest culture, they demand a foremost place in the list of desirable plants for pot culture. The amateur is much more likely to succeed with them than with the tulip.

The daffodil or narcissus is one of the loveliest of flowers. The best forcing varieties are:

EARLY PAPER.—White.

VAN SION.—Clear yellow.

DOUBLE ROMAN.—White and orange.

INCOMPARABILIS PLENUS.—Pale yellow perianth with orange cup.

STELLA ALBA.—Pure white, with cup of gold.

TRUMPET MAJOR.—Yellow and cream white.

The popular "Chinese Sacred Lily" is a narcissus of the polyanthus class, and can be grown in soil or water.

The Bermuda lily, catalogued as *Lilium Harrisii*, and popularly known as the "Easter Lily," because it is extensively grown for decoration at Easter-time, is one of the most satisfactory of all bulbs, since it is almost sure to bloom if ordinary care is given it. And no flower excels it in stately grace or lovely purity. If I could have but one bulb for winter use it should be this.

CHAPTER XXIII

HOW TO MAKE AND CARE FOR THE LAWN

THE village home, and the home of the farmer as well, is never what it may be, or what it ought to be, unless it has its lawn. This may be small,—so small, indeed, that to give it the name of lawn seems almost like burlesque,—but the fear of laying one's self open to ridicule by giving a modest bit of ground too pretentious a name should not deter one from making the most of the opportunity to improve the home grounds.

Lawn-making on a large scale is quite unlike amateur lawn-making, because it can be done by the use of machinery specially constructed for the purpose, and under the supervision of men skilled in the work. There is a plan by which one may work, and the development goes on with a system which brings about definite and most satisfactory results. There is no haphazard work about it.

On the home grounds, where the lawn can be only a part of a small lot, no very elaborate arrangement is possible; but before anything is done it is always advisable to study the situation, and have some definite idea of what you are going to do.

If the house stands in the centre of a comparatively level lot, it will generally be found most satisfactory to have the ground slope away evenly from it on all sides. If a cellar has been dug, or much earth thrown out in making the foundation of the house, there will be considerable available material on hand which can be filled in next to the house in such a manner as to produce the necessary slope there. But if there is but little of this material there, or the lot is of considerable size, it will be necessary to do a good deal of filling in, if grading is not practicable. Where this can be done, the soil can be scraped from the edges of the lot to the vicinity of the house until there is enough there to produce the desired slope. But this plan cannot be made to work on lots of much size, as not enough material can be spared from the edges of the lot. The best thing to do is to have earth drawn in on the premises.

Some persons get the idea that the kind of soil used in making a lawn is of little importance. This is a mistake. The soil, in order to produce good results, should be quite rich. A good growth of sward cannot be expected from a soil lacking in fertility. Therefore, if the material used is not what it ought to be in this respect, be sure that it is enriched before sowing any seed upon it. Old, well-rotted manures from the horse and cow stables are good, but

there is always the possibility of introducing weeds by their use. If one has to buy his fertilizer, I would advise the use of bone-meal, or some of the many reliable fertilizers on the market, as these produce prompt and satisfactory results, and no weeds can come from them. Do not be satisfied with a simple application to the surface of the soil, but apply it in liberal quantities, and have it worked well into the soil. This advice applies to whatever kind of manure is used. It should get down to where the roots are to be when the sward is grown.

Before sowing the lawn, care should be taken to have the soil fine and even. To secure this condition, go over it several times with the hoe and the rake. Use the hoe to break apart all clods, and do not be satisfied until they are thoroughly broken up. What you want as a foundation for a good lawn is a soil that is fine and mellow, and alike in this respect in all parts of it. If you only half do the work of preparing it, you will have fine and mellow patches alternating with hard and lumpy ones, and the effect will be readily discernible in the appearance of the sward. After breaking up all the lumps with the hoe, go over the ground with an iron rake. You will find that this works many unseen lumps to the surface, and these should be pulverized in turn. Then go over it again and again—keep at it, indeed, until

you are unable to bring any more lumps to the surface. When you have the soil so finely pulverized that there are no lumps—and not till then—your lawn will be ready to receive the seed.

If there are any hollows or depressions, be sure to see that the soil that is put into them to bring them to the prevailing level is made firm. If this is not done, and the soil is left loose, as when dumped or scraped in, it will settle after a time, under the influence of heavy rains, and you will have an uneven surface. This can be prevented, if care is taken to beat down all such places until the soil has the same firm compactness there as elsewhere. Some prefer to grade their lawns one season, and let them remain without sowing until the next season, thus giving the soil a chance to settle thoroughly. I do not consider this necessary, if pains be taken to make the soil firm. A good instrument with which to do this is made by fastening a block of wood to a handle, something like the old-fashioned “pounder” which women use in “pounding out clothes” as a preliminary part of the operations of washing-day. It should not be so heavy that it cannot be used to advantage, but the heavier it is the more effective its work.

Care should be taken to see that all necessary work is done before seed-sowing, as after that but

little can be done without seriously interfering with the well-being of the sward. Do not be in too great a hurry to have your lawn completed, for one does not make a lawn every year, and when he does make it he wants it to be something that will be satisfactory. In order to have it so, every part of the work about it must be done carefully and well. This fact cannot be too firmly impressed upon the mind of the amateur lawn-maker. Therefore, I say again, take time for it, and slight nothing. Remember that you are doing something which, if not satisfactory, can hardly be undone and made over next season. There is no reason why a lawn, if well made, and well cared for, should not last for years, or a lifetime.

One cannot be too careful in the selection of seed. Almost every dealer in agricultural wares has what he calls lawn-grass seed on sale, but in many instances the mixture is a cheap one, and the use of it will give most unsatisfactory results. What is wanted is a mixture of seeds of grasses having a tendency to make a low and spreading growth—something that “stools out” until the sward is thick and deep, and feels under the foot like the pile of a velvet carpet. I find that it always pays to send to some of the old seed firms who have built up a reputation by years of honest dealing, and get the mixture they offer. You may have to pay more for them, but you

may be reasonably sure of getting something that will give satisfaction, for such dealers cannot afford to send out an inferior article.

One important thing to remember is to use seed liberally. Thinly-sowed lawns have to be given a longer time to develop than is required by those on which seed has been used in large quantities. The grass must thicken before it will make a good sward. By thick sowing a similar result can be obtained the first season. In purchasing seed it is always well to let the dealer of whom you buy it know the size of your lot, and leave it to him to determine the quantity of seed you will need. You need not be afraid of his taking the advantage of you, for, as I have already said, he has a reputation for fair dealing which will prevent him from doing this.

In sowing the seed, choose a still day. If the wind blows ever so slightly, you will not be able to sow it evenly, because most of it is light as dust, and a puff of air will send it from your hand in such a manner that some of it may be carried to ground which you have already sown, while that for which you intend it may get none at all. It is a good plan to get some man used to sowing grass-seed to do this part of the work for you, if possible. If you cannot do this, it is well to go over the ground twice, once from east to west, and once from north to south. By

cross-sowing you will be likely to get the seed scattered with comparative evenness. If you have a small iron roller, or any device that is similar, it is a very good plan to go over the ground with it, immediately after sowing the seed, to force it into the soil, and thus prevent its being blown away. But do not use a rake on it, as some do.

I would not begin to mow a new lawn until the grass has grown to a height of three or four inches, and then I would not cut it very close. To do this, at this stage, often injures the sward greatly. I would clip it about twice a week, for the first summer, if the season is an ordinarily moist one. If very dry, I would not use the mower so often. It is a great mistake to keep your grass cut too close. There must be enough of the grass-blade at the root of the plant left to make a good showing of green if one expects the sward to look well. Cutting close—and some almost shave the turf—gives the sward a brown look, because the crown of the plant and the dead leaves usually found there have a chance to show through the few green leaves left. If the season is a dry one, and you live in a town having water facilities, you can benefit the lawn greatly by wetting it down well every evening. To do this, you must use a good deal of water, and shift the hose about so that all parts are reached by it. But do not begin to do this unless

you can do it thoroughly, and keep it up as long as necessary. Spasmodic attentions are always harmful. If you live in the country, where there is no system of water-works, it is not worth while to attempt to supply needed moisture by any manner of watering available there, because it is impossible to apply enough water to do any good. One could spend his whole time in applying water with a pail or a watering-pot without benefiting the lawn in the least. After the first season, most lawns will be in a condition to stand dry weather pretty well without artificial watering, because they will have so thick a sward that the moisture of the soil is prevented from evaporating rapidly by the shade it furnishes.

It is a most excellent plan to give the lawn a dressing of bone-meal every fall, before snow comes. This dissolves under the action of the elements, and finds its way to the roots of the grass, and the result is a strong, early growth of healthy character. In June give another application of the fertilizer. Let it be liberal, each time. In this way you keep up the fertility of the soil, which it is absolutely necessary to do if you expect your lawn to continue to be the "thing of beauty" you will make it if you follow out these instructions carefully. In raking off the clippings, never use a sharp-toothed rake, for it is sure to tear the soil, but provide yourself with a wire rake made for lawn use.

CHAPTER XXIV

PLANTING THE LAWN

ABOUT the first thing many persons do, after making a lawn, is to spoil it by planting shrubbery all over it. Most persons lose sight of the fact, or are ignorant of it, that one cannot have a fine lawn if there are many shrubs growing on it, neither will the shrubs develop well in a soil partly given up to grass. You will be doing a good deal of unnecessary work—work that does not need doing if shrubs are to take the place of grass. Let the lawn proper be lawn, and choose a place for your shrubs where they will not be at war with the sward. Of course, sward can grow among them, but it must be kept away from them, or they will be choked and starved out. By this I mean that in order to give a shrub a chance it will be necessary to keep the grass cut away a foot and a half or two feet on all sides of it, and to do this on the open lawn would make a sorry sight of it. Therefore do not plant your lawn in such a manner that you will spoil it by cutting out half the sward in it.

The primary idea of a lawn is a stretch of green

sward between house and street, or, at any rate, near the house, and its object is to afford a restful bit of color for the eye, and to isolate the house, in a sense, from the public highway. It is the sign of separation of home from the outside world, and the broader its expanse the more privacy and seclusion it gives to the home. But a small lawn serves to carry out this idea of seclusion to a considerable extent, provided it is not spoiled by breaking up the sweep of it by planting too many shrubs there. If this is done, the sense of distance and privacy is destroyed, and the impression given is not half as pleasing as that resulting from a lawn entirely without shrubs.

I would not advise one to discard shrubs altogether, however, on even a very small lawn, but rather to plant them in such a manner that a portion of it near the house, and between it and the road or street, if possible, be left unbroken. Shrubs can be planted at the sides, and when confined there they help to carry out the suggestion of a separation of your property from your neighbor's.

But, for good taste's sake, do not make the all too common mistake of planting your shrubbery in rows, or in groups that recur with the regularity of apple trees in an orchard. Aim to avoid all arrangements that will suggest formality. Before planting

the lawn I would advise you to go to the fields and see how Nature arranges her shrubs in corners where she has not been interfered with. The growth of bushes along the edge of a field will afford you some valuable hints about planting shrubs along the edge of your lawn. There will be no prim regularity there, no straight rows, but a simplicity that is the perfection of artistic arrangement. Because, you will find, if you take the trouble to study into it, that Nature is always artistic because she is always simple and direct. When she aims to carry out an idea she goes straight to the heart of it, and in the simplest fashion possible. She is governed by her instincts, which are unerring, and, therefore, she never makes a mistake. You cannot learn the lesson of the hedge-rows and the fence-corners in a day, but you can get some idea of the line along which Nature works, and you can imitate her to some extent, and that will be much better than imitating your neighbors, for the probability is that in doing that you will be copying a mistake, and the more a mistake is copied the greater the departure is from whatever similarity there was to the original idea at the beginning. In perpetuating a mistake by repetition of it, we almost invariably exaggerate its most objectionable features.

Care must be taken to plant in the background

such shrubs as are of tall growth. In order to do this you must understand the habit of growth of the kinds you decide to use, or you may get them in the wrong place. We frequently see collections of shrubbery in which those in the foreground completely hide those behind them. When we see anything of this kind it is safe to conclude that whoever planted them did not understand much about the habit of the shrubs he selected.

I will give a list of such shrubs as I would recommend for general planting, with the height to which they generally grow :

Lilacs, old-fashioned sorts, eight to twelve feet;
Persian varieties, five to seven feet.

Hydrangea paniculata, four to five feet.

Weigelias, three to four feet.

Spireas, three to four feet.

Amygdalus (almond), three to four feet.

Pyrus Japonica (Japan quince), two and one-half
to three feet.

Flowering currant, five to six feet.

Syringa, five to six feet.

Honeysuckles, six to eight feet.

Deutzia, two to three feet.

Berberry, six to eight feet.

Exochorda, ten to fifteen feet.

I have named a dozen shrubs. The list could be

greatly extended, but I do not consider it advisable to add to it, because I never advise the amateur to attempt the cultivation of plants requiring peculiar treatment, or of those not hardy enough to stand our Northern winters. Because I have named but a dozen kinds it does not follow that I would advise the use of but a dozen shrubs, for there are so many varieties among the dozen that a large lawn could be stocked with the kinds named without duplicating any variety. A few good ones will prove vastly more satisfactory, however, than a large number of inferior ones. We generally make the serious mistake of planting three or four times as many shrubs as the lawn will stand, because at planting time they are so small that they produce but little show and occupy but little space, and we lose sight of the fact that if they grow and develop well they will, in a few years, become crowded, and nothing about the home grounds is more unsatisfactory than a thicket of shrubbery in which every shrub loses its individuality and interferes with its neighbor to such an extent that all are made weak and inferior. When you plant shrubs remember that nearly all will, when fully developed, have a spread of from four to six feet, and plant accordingly. If you group them, of course the plants of which the group is composed can be set closer together, but leave a space about

the group the same as you would about a single shrub, for the effect of a group of shrubs is that of one large shrub. Therefore, before planting your lawn, go over the list of shrubs given above, if your selection is made from it, and select according to size to fit the various places at which you will plant. I would suggest that you draw up a diagram of your grounds and mark on it the place for each shrub before you begin to plant. By doing this you will not be likely to make any mistakes if you have studied the list and are governed by the figures given there.

I am an advocate of the system of grouping our smaller shrubs. Much finer effects are secured in this way than when the shrubs are planted singly. Take the deutzia as an illustration. One plant is charming, so far as it goes, but there is not enough of it to produce a strong effect. But plant four or five in a group, and you get an effect that is striking because the breadth of it gives the dignity and strength seldom possessed by a single plant. It is true that sometimes we see fine, large specimens of this and other shrubs of similar habit of growth, but not often, and my advice is based on the size to which they generally grow. The hydrangea, planted singly, makes an attractive shrub, but no one understands the capabilities of the plant for grand decora-

tive effect until he has seen it growing in masses. And what is true of the hydrangea is true of most medium sized and all small shrubs. But be sure to treat your groups precisely as you would such shrubs as do not stand grouping well, like the lilac, and isolate them from other groups. In other words, consider a group as a shrub of greater size than the ordinary, and treat it accordingly.

Bear in mind what I have said about formality. Avoid straight rows and regular distances. Let the shrubbery grounds curve along the edges of the lawn without breaking over into it.

I would not plant shrubs near the house. They interfere with the freedom of view and destroy the effect gained by planting them at the sides of the lawn. If you must have flowers there, use such summer plants as the dahlia, salvia, or canna.

In planting shrubs be sure to have the soil rich and mellow, and do the work carefully and thoroughly. Do not dig a little hole, as many do, and crowd the roots of the plants into it in a tangled mass, and then tramp the soil down upon them roughly. Make the hole large enough to allow of straightening out the roots in a natural manner, and then scatter soil over them and work it in among them with your fingers. When they are covered, apply water enough to thoroughly settle the soil,

after which fill in about the plant until you have disposed of all the earth. If the season is a very dry one, it may be necessary to water newly-set plants occasionally, but in ordinary seasons the watering given at planting-time will be sufficient to keep the roots moist until the plant gets a start. It pays to do this part of the work well. If you do it in a slovenly manner it is quite evident that the care of the shrub in the future will be slovenly, and shrubs given such treatment cannot be expected to give much satisfaction. The man or woman who has a genuine love for these things will be willing to give them good care, and only by doing this can success be attained with them. My definition of success in plant-growing is—getting out of a plant all that is in it. This can only be done by studying its habits and needs, and treating it accordingly.

It will be noticed that I have said nothing about roses. I did not omit them from the list because I would advise omitting them from the garden, but because I do not consider the rose suitable for planting in prominent positions on the lawn. It does not attain a size that gives it dignity enough for such a position, even when grouped, and it is not to be depended on to come through the winter in good condition. By all means have roses—and a good many of them—but give them a place by themselves, in

the most sheltered nook of your garden, where you can give them protection in winter without making an unsightly spot on the lawn. Hardy shrubs are beautiful in winter, when their branches show against a background of snow with all the delicacy and distinctness of an etcher's lines, but a barrack of boards about a rose-bed would hardly add to the attraction of a winter lawn.

CHAPTER XXV

THE OUT-DOOR GARDEN

Too frequently the summer flower-garden is unsatisfactory. Often, quite disappointing. There is lack of system and harmony in its arrangements which might have been avoided in a great degree, or altogether, if proper forethought had been exercised.

Many amateur florists wait until the time for garden-making is at hand before giving any thought to the matter. They have not decided on any plan or arrangement of beds, or of plants to grow in them. They seem inclined to "trust to luck" and the "inspirations of the moment" for things to turn out satisfactorily, and this they seldom do. "Luck" cannot be depended on in such matters.

The only way to secure a satisfactory result in the flower-garden is by giving it careful study. Decide on what you can do, or at any rate, what you would like to do, and think the matter over well before you begin operation. Do not make elaborate plans when you have the least reason to doubt your ability to carry them forward to successful completion. Don't undertake more than you can easily do. Don't attempt to have everything that is worth

growing in your garden. The ordinary home-garden can include but a small share of all really desirable plants. Select a few of the best, but only as many as you feel sure of being able to properly cultivate, remembering, always, that a few plants well grown are sure to afford pleasure to yourself and friends, while a great many poorly grown ones are a source of vexation and disappointment. Quality should be considered as of more importance than quantity.

Do not aim to have your garden like that of any one else. Be original. Much of the pleasure derived from flower-gardening operations consists in planning to suit the owner's ideas of the fitness of things, rather than in copying the designs of others.

Do not go to work with a great deal of enthusiasm, setting out to accomplish great things, then become "weary in well-doing," and end by letting your garden grow up with weeds. Unless you feel sure that you are willing to do a good deal of hard work in weeding and hoeing and transplanting—unless you have enough resolution and perseverance to give your garden the attention it needs all through the season, do not attempt to have one.

If you have never had a garden, and do not fully understand the demands it will make upon your time and labor, start out in a very conservative way. Have a small one this year. Next year have a larger

one if the success of this year warrants you in attempting it. It may be that one year's experience will convince you that it is not desirable to attempt having any. But I do not fear such a result if you really love flowers, and only those who really love them should attempt to grow them.

Never allow the "design" of a bed to give you more concern than what you put in it. As a general thing, the amateur gardener will do well to steer clear of "fancy beds." Unless they are given a great deal of attention they are sure to be unsatisfactory. Aim, then, to have beds of pleasing shape, but let these shapes be simple and in harmony with the habit and character of the plants to be grown in them. Circular or oval beds are suited to prominent locations, because tall plants may be grown in the centre, smaller ones about them, and low sorts at the edge, giving an effect which is pleasing from all points of view. Circular or curving beds are more satisfactory than straight or square ones, because all plants seem more in harmony with curves and flowing lines than with angles. If you are not very particular about the shape of your bed, but want something easy to reach from all points, a long, narrow one will suit you best. Such beds near the path, and following its curves and angles in general outline, are always more pleasing than wide ones.

If you have wide beds that are to be seen from the path and are at some distance from it, plant tall flowers at the farther side, and arrange your plants in such a manner as to give one the idea of a slope or bank. Always keep in mind the principal points from which your beds will be seen, and arrange your plants so as to have them make an effective display from those positions.

In order to do this satisfactorily it will be necessary to study your catalogues thoroughly, so that you may know what kinds to plant in the background, the middle distance, and the foreground.

If your garden is long and narrow, and at one side of the path, as many necessarily are, because of the circumscribed limits of village or city lots, let the "banking" idea prevail throughout. That is, plant tall growers in the farther bed, and work down to low-growing plants in the places nearest the path. In this way it is possible to give all a chance to display themselves. Such a result, however, cannot be secured without a knowledge of the material you are to use. Know your plants.

If you want the best possible effects, do not put several kinds of flowers in the same bed.

Most satisfactory results are secured by planting each kind by itself, and, as a general thing, each color by itself. But where contrast is desired, two or

three colors may be used very effectively in the same bed, provided they are such as harmonize perfectly. Not all colors of the same flower are in harmony with each other. You can easily satisfy yourself of the force and truth of this statement if you place clusters of the scarlet, mauve, and magenta phlox side by side. The combination is positively painful in its effect upon the eye. So do not place several varieties of the same flower in the same bed unless you know what the colors of these varieties are. It is because of the inharmonious combination of color that nearly always results when packages of "mixed" seed are used that I advise buying packages in which each color is kept by itself, for in this way you can plant for a particular effect, and be reasonably sure of getting it. But this you can never do when mixed seed is used.

In planning the garden, do not consider one bed as entirely independent of the others. Rather, consider the garden as a whole, and arrange your beds in such a manner that the color in one will harmonize with that in the next one. Study general effect rather than individual display in the selection and arrangement of your colors.

It is well to make a plan of your summer garden on paper, early in the season. Think it out carefully while you have plenty of time to do so. Imagine

the effect of this or that plant in this or that place, and shift and change about until you feel sure you have an arrangement by which each kind you have decided to use may be most effectively seen from the path or the house. If you are familiar with plants, it is not at all difficult to form mental pictures of the garden to be, which will be of great help to you in coming to conclusions as to what plants to have, and where to have them. When you have decided, draw a map or diagram of your garden as you propose to have it, marking each bed with the name of the plant it is to contain. When the time comes to do the work, you will know just what to do, and when the time comes to sow seed or set out plants, you will know just where they belong. A plan of this kind greatly expedites matters, because it simplifies them, and gives you something to be governed by. Without such a plan, gardening operations are sure to be on the hap-hazard system. The garden which affords most pleasure is the one which has been most carefully thought out in all its details.

I have said but little about beds, their form, or their arrangement, because it is impossible to do very much in this line without knowing the conditions that prevail in each case. Each person must be a "law unto himself" in this matter. If he has good taste, and understands the plants he has selected, he

can arrange his garden much more to his pleasure than any one else can arrange it for him. Any one who has the true gardening instinct will prefer to attend to this matter for himself.

Let me give one item of advice which the amateur will do well to heed. Do not attempt anything elaborate unless you have had considerable experience. There is safety in simplicity.

I would also advise having separate beds for annuals and so-called "bedding plants." The two classes do not combine well.

"Bedding plants," so called by the florists to distinguish between the annuals and the greenhouse plants used for filling beds on the lawn or in the garden, seldom bloom as freely—with the exception of the geranium—as annuals do, and have a quite different habit of growth, and because of these differences it is advisable to keep them apart. Most "bedding" plants have more delicate flowers than the annuals, and a greater "air of distinction," because of quality, and they should be given a place near the house or path where their beauty can be seen to the best advantage.

The following plants are adapted for conspicuous positions on the lawn or for back rows: Dahlias, amaranthus, salvia, canna, zinnia, gladiolus.

For beds where plants of medium height are

wanted: Aster, balsam, calliopsis, larkspur, marigold, poppy, phlox.

For low beds near the path or house: Pansy, eschscholtzia, daisy, candytuft, sweet alyssum, portulaca, ageratum, verbenas.

For beds where a brilliant show of color is desired: Calliopsis, yellow; eschscholtzia, yellow; salvia, scarlet; phlox drummondii, rose and white; nasturtium, orange and maroon; petunia, violet, crimson and white.

For border plants: Candytuft, white; alyssum, white; ageratum, blue; lobelia, blue.

The best edging plants among the bedding ones are: Mad. Salleri geranium, green and white; golden-feather pyrethrum, yellow; centaurea, gray.

By using the various shades of coleus a greater range of color can be obtained, but I do not consider this a very good plant for edging a bed. It does better as a "filler," with some more close-jointed, compact-growing plant as a border.

For combinations where brilliant show of color is desired use scarlet salvia as a centre plant, surrounded with golden-yellow calliopsis and edged with candytuft or sweet alyssum. Dwarf maroon nasturtiums can also be used effectively.

For tropical beds on the lawn the ricinus is an important plant. It grows to great size and has a

spread of six or eight feet, with bronzy foliage often two or three feet across. Its immense leaves have a rich, metallic lustre, and give the plant a most stately appearance. One plant is impressive in its effect, but several in a group are better. These can be used alone or in combination with cannas or caladiums.

For smaller beds use cannas in variety, planting with due regard to size as well as color of foliage.

For covering screens or fences: Sweet pea, morning glory, flowering bean, Maurandia, gourds.

For sunny locations: Portulacas, nasturtiums.

For shady places: Pansy, myosotis.

For beds close to the path: Tea roses, first of all; heliotropes, verbenas, pansies.

For carpet-bedding, where color alone is required: Coleus yellow-bird, pyrethrum golden-feather, yellow; achyranthes, alternanthera, crimson, yellow, and green in combination; coleus, red, maroon, and green and white; centaurea, coral, silvery gray.

For massing: Petunias, phlox, aster, calliopsis.

For cutting, the following plants are excellent: Sweet peas, heliotrope, mignonette, nasturtium, calliopsis, tea-roses, salvia, poppy, dahlia, gladiolus, rudbeckia, "golden glow," pansy.

For planting about the veranda: sweet pea, morning glory, Maurandia.

For late flowering: Asters, ten-week stock, pansy.

Of the easiest culture: Petunia, phlox, calliopsis, balsam, aster, marigold, sweet pea, morning glory, candy tuft, sweet alyssum, pansy, portulaca, nasturtium, zinnia, gladiolus, larkspur.

The plants in the foregoing list are especially adapted to the needs of the amateur florist. They are hardy, self-reliant, robust, and free flowering, and they are all good.

I think a careful study of the several lists that have been given will enable any one to select plants suited to each purpose in flower-garden or lawn requirements. I have named the best kinds for general use and have given lists large enough to admit of free selection. In looking over the catalogues you will find a great many I have not mentioned. Some are good; some are not. Some are satisfactory when grown by an experienced gardener, but disappointing when grown by the amateur. The kinds named fill requirements, and the man or woman who gives them proper care may feel reasonably sure of success with them.

A few words as to what is meant by the term "proper care" may not be amiss. By it I mean—

1st. Keeping the bed free from weeds. You cannot grow good flowers unless you suppress the weeds. The two will not get along well together. Therefore,

never allow a weed to become established in your flower-beds. Pull it up the moment you discover it.

2d. Keeping the ground open and mellow, to enable it to made use of all the moisture that comes along, either from rain or dew. Never let the surface of the soil become hard and crusted. If you do, it cannot take in moisture and your plants will suffer for lack of it. Stir it two or three times a week throughout the season, whether it is wet or dry.

3d. Removing all fading flowers. By doing this you prevent the formation of seed and induce the plant to continue the production of flowers. If you allow seed to form, all the energies of the plant will be used in ripening and perfecting it, and you will get but few flowers after the first general crop. Therefore, never allow a plant to form seed if you want to keep it blooming during the season.

CHAPTER XXVI

HARDY BORDER PLANTS

EVERY year I am more and more impressed with the value of hardy border plants for the amateur florist. They are good for years, when once established, if properly cared for, and to care for them properly does not call for a great amount of labor.

The term, "proper care" is one in which there are several degrees.

In the lowest degree, it means simply keeping the weeds from encroaching on the plants, and this is about all the care that hardy border plants are likely to receive from very many amateurs, and most varieties will do quite well with this simple attention—much better, in fact, than any other class of plants.

The next degree adds to keeping down the weeds, the regular and liberal fertilization of the soil. This is a matter I have constantly urged as being of the greatest importance to one who aims to develop the plants in such a manner as to satisfy the enthusiastic florist who, it must be remembered, is not to be satisfied with the average plant, the plant as generally

grown, but who insists upon having finest specimens. Quality is more to him than quantity.

In the third degree there are included many little items of attention which I need not mention here, but which the careful cultivator will understand fully, if he studies his plants, for a knowledge of them will enable him to see what can be done for their benefit without being told about it. There are many seemingly unimportant things connected with plant-culture which are really of great importance, and with these we must become familiar by experience and personal work among the plants. They cannot be "put down in the books." It is an acquired knowledge.

For the lover of flowers who has not a great deal of time to devote to their care herbaceous plants are the kind to be selected for the garden, because of the ease with which they are cultivated and the generous returns they make. It requires less care to keep a large collection of them free from weeds than it takes to weed a small bed of annuals, and work with the hoe is far easier than hand-weeding. I would not be understood as advising the neglect of annuals, but I would advise the growing of fewer annuals and more hardy border plants.

One of the very best perennials is the phlox. It has always been valued highly as a means of produc-

ing a grand show of color. Of late, varieties have been produced which are wonderfully beautiful when the individual flower is considered. Some of the newer sorts are as large and as brilliant as a geranium, and when the immense size of their trusses is taken into consideration, and the length of time they remain in bloom, with the large number of flower stalks sent up from each strong clump of roots, the good qualities of this plant will be more fully realized by those who have seen it but have not grown it. I consider it the best hardy summer-flowering plant for general culture. Its care is of the simplest. It likes a rich soil, as all plants of this class do. It likes to have grass and weeds kept from choking it and robbing it of nutriment. Beyond this it makes no demands. Year after year its roots increase in size, and the clump grows larger, until you have a solid mass of flowers three or four feet across, of all shades of crimson, rose, violet, lilac, purple, and scarlet to pure white. It is entirely hardy. It is easily increased by division of its roots. It is charming when planted among shrubbery to furnish brightness after the shrubs have passed their period of bloom. Fine effects are secured by planting it in groups, with the tall-growing sorts in the rear.

Next in value to the phlox I would place the

hollyhock. I am not sure but I would give it first place on the list if it were as strong and hardy as the phlox, but it is not, consequently there are more failures with it. The old single varieties used to be very robust, and lasted for years, but the new and beautiful double sorts seem to have gained their beauty at the expense of vitality, and the plants are seldom worth keeping for a third season. I would advise sowing a few seeds each year, so that a supply of young and healthy plants can be kept on hand. These young plants should have a protection of leaves given them in fall, and care should be taken to see that water does not stand about their roots. Nothing is more effective for bold and prominent points of decoration than groups of these new double hollyhocks, with their rich and varied coloring, running through all shades of red, scarlet, purple, rose, and maroon, so dark as to appear almost black, and ranging from this to pale yellow and pure white. But the old single kinds deserve a place in every garden. For back rows, where something of good size and striking appearance is desired, it is one of the best of all plants.

The aquilegias, of which there are many varieties, are all desirable, and among our best hardy plants. I prefer the soft, delicate yellows, the pure, pale blues, and the white kinds. Mass them and you

will have a charming body of color for weeks during the early part of the season.

Coreopsis lanceolata is one of the new plants, sure to win its way to popular favor. It is perfectly hardy. It sends up many slender flower-stalks crowned with daisy-like blossoms of the richest yellow.

The pink and white herbaceous spireas deserve a place in every garden. We have few daintier flowers than these, with their delicate, feathery clusters lifted airily above their clustering foliage on long and slender stalks. They are very hardy.

No garden is complete without peonies. One frequently sees strong old clumps of them, three or four feet across, bearing hundreds of flowers, of noble size and most beautiful coloring. Such a specimen of this plant is magnificent when in bloom, and cannot be too highly prized. Give it a somewhat heavy, clayey soil, and make it very rich with old cow-manure. Disturb its roots as little as possible.

The perennial larkspur is a grand plant when well grown. It often reaches a height of seven or eight feet, with thirty, fifty, often a hundred stalks from each strong clump of roots, each one bearing a spike of flowers from two to three feet in length. Formosum is of the richest blue, deep, intense, and almost luminous in its brilliance. This is one of the plants

belonging to the back row. There are pale blue and white varieties, but they are not so fine as the good old *formosum*.

One of the popular flowers of the day is the iris, and deservedly so. This plant has a wonderful range of rich and delicate colors. Such blues and yellows and purples, such maroons and pearly whites, such grays and violets, we seldom find in any flower. Its exquisite colors and combinations of color, its long season of bloom, and its freedom of flowering makes it a favorite wherever it is grown.

The domesticated aster is another most desirable plant. Cultivation has greatly improved it in size. It blooms much more freely than its relatives of the fence-corner and the pasture-lot. It comes at a time when there is a dearth of flowers, and lasts until the coming of cold weather. The two best sorts for the amateur's garden are *novæ anglea* and *rosea*.

Of course, every border should have its collection of lilies. There should be the Japanese sorts, *album*, *speciosum* and *rubrum*, with that showy old-timer, the "tiger lily," brilliant in orange and brown, and the well-known *candelabrum*, with its golden cups uplifted to catch the sunshine. I do not advise *longiflorum* or *auratum* for cultivation at the extreme north, for they are not hardy enough to be depended upon.

For front rows, there is the hardy pink, the pretty little phlox subulata, and the evergreen candytuft.

I must not forget to speak a good word for the dicentra. This lovely flower has the special merit of being an early bloomer. It follows the bulbs closely, and is quite as beautiful as anything that grows in the garden. Its long sprays of pink and white flowers are excellent for cutting. Give it a very rich soil. It is entirely hardy.

The new rudbeckia, "golden glow," is one of the finest plants of recent introduction. It is as hardy as a plant can possibly be. It is a wonderful bloomer, and its rich, golden yellow flowers are quite as fine as the popular semi-double dahlias, which they resemble in size and shape.

I would advise having the border by itself, as far as possible, because it will be necessary to hoe about the plants in it frequently, and this can be done to better advantage if they are by themselves than where they are planted among shrubbery. Grown among shrubs, they will quite surely be robbed to a great extent of the nutriment they require. I would advise the use of a few perennials among the shrubs, but the bulk of them should have a place of their own. A good place for them is beside a fence which you would like to hide as much as possible.

Of course it will be understood that the list here

given does not include all the really good kinds of hardy plants, but it is made up of those which are most likely to do well under such care as they are likely to get from the amateur gardener, and there is not a poor kind in it. Most of them are free bloomers. Many of them flower for a period of several weeks, and all of them are capable of taking care of themselves if you give them a good soil and a little attention spring and fall, along the lines already indicated. As the amateur gardener attains success in the cultivation of the kinds named, he can add to his collection those more particular in their requirements. In this, as in all other branches of gardening, it is well to begin in a modest way if one has it all to learn, and extend operations as his knowledge of plants and their needs increases. Davy Crockett's well-known advice, "Go slow and learn to peddle," applies to floriculture in all its phases, as well as to all other kinds of business. One cannot become a successful cultivator of flowers in a season.

CHAPTER XXVII

TABLE DECORATIONS

IN conclusion, a few remarks on simple but artistic decorations for the dinner-table, by those who have small green-houses or conservatories, or even small window-gardens, will not be out of place. It is an easy matter, after a little practice, for those who have good taste to arrange decorations for the table with simple material.

Little dinner parties need not necessitate calling in the expensive decorator. More elaborate parties can be met in a more elaborate manner of decoration, if thought advisable, but I am confident that a little experience in adorning a table with flowers or growing plants will convince most families that the services of a professional can be dispensed with to advantage. Most decorators fall into a rut. Their decorations for their table at Mrs. B.'s are pretty sure to be a copy, after a fashion, of those made for Mrs. A., and those for Mrs. C. will be quite similar. Monotony and sameness of effect result, while freshness is desired.

The home decorator who does not "make a busi-

ness of it" will have new ideas, and the time to study out pretty combinations which will please with their charm of freshness and variety. The simplicity which will naturally characterize most of them will be a strong argument in their favor, when compared with the inartistic, unnatural " designs " so prevalent among professional works. The fact is, most floral designs, whether for table, party, or other use, degrade the flowers used, because their individuality is destroyed and general effect only is the aim. There is too much elaboration. This weakens, while in simplicity there is strength. Home decorations are generally most pleasing because less material is used, consequently each plant or flower has the opportunity to display its charms fully, which is never the case where a great quantity is used.

A good rule by which to judge any arrangement of flowers or plants, is to look at it as if it were a picture. Imagine it on canvas, and hanging on your wall. Looked at critically, in this way, the ordinary table decoration will take on a stiff, unnatural air far from pleasing. It will appear too formal and fussy. It resolves itself in the majority of cases into a show of bright colors simply. The individuality of each flower is lost, as if of secondary importance, while it should be primary. But if the arrangement on your table, when imagined into a picture on

your wall, gives that pleasing impression which truly artistic work should, and you feel that, were it indeed a picture, you would not tire of it almost immediately, then it is safe to conclude that it is a success.

If you have a good flower piece to study, it will be of great benefit to you. It will not furnish a pattern which you can reproduce, but it will suggest many things to you, and you will, in time, learn that effects secured by following suggestions are more satisfactory than mere copying of the design studied, be it ever so good. Why? Simply because the result of work wrought out by suggestion will have individuality in it, and that, in this case, is a synonym for originality. There is a certain nameless something about original work that always attracts, though it be crude, while copied work seldom attracts much attention. It seems to say on the face of it that it is a reproduction of some one's else idea—that, and nothing more—while the cruder original work, which can be wholly original, though resulting from suggestions, has the stamp of its owner's personality.

One thing that will impress you very forcibly in studying a flower piece is that while there seems to be a wealth of color and beauty on the canvas, this effect is secured by the use of what might be considered very slight material. There will frequently be but four, five or half a dozen flowers, and a corre-

sponding amount of foliage, but the picture will have brightness enough in it to beautify and light up a room. You will be surprised at the effect secured by limited means when you come to analyze the picture. Surprised, because most likely you will have had an idea that half a dozen flowers were wholly inadequate to the satisfactory decoration of a table. From this you will learn that the artist has depended on wealth of quality rather than of quantity, in his effort to make a pleasing picture, and when you fully realize the truth that lies in this fundamental principle of all true art, you will have outgrown the mischievous idea that one must have a large conservatory or a big bank account to be able to "furnish forth a feast" in a satisfactory manner with flowers.

Another thing you will learn from the picture—that the artist has not sought to improve on Nature in the arrangement of his flowers. He has simply imitated her method. He has been content to reproduce faithfully. The flowers and their foliage have been painted as they grew, because he knew very well that any attempt on his part to re-arrange them would result in partial or complete failure. Most arrangements of flowers in vases are unsatisfactory, though the observer may not be quite able to determine why. The colors may harmonize. There may

not be a sufficient quantity used to crowd the mass into a jumble. Still the effect is not what it ought to be. Patient study will convince you that the unpleasant effect results from the attempt to make everything very symmetrical. The flower on this side must be balanced by a flower on that side. Foliage must be disposed in such a manner as to suggest a most impartial distribution of it; all parts must fare alike. This is all wrong. Look at a branch of apple-blossoms. Could any artist improve on it? But when you study its arrangement you will see that here is a tuft of leaves, there a cluster of blossoms, perhaps a bit of branch leafless and flowerless. There is no symmetry resulting from an attempt of Nature to secure "balanced" effect, but a symmetry that is the outgrowth of an artistic idea, or, more properly, instinct. Never try to arrange flowers in such a manner that they will look the same from all sides.

Take your lessons of arrangement from Nature, who is the only decorative artist that makes no mistakes. Those who undertake to improve upon her methods always produce something formal and labored. Nature believes in simplicity, and the result is spontaneity of effort. In following, so far as we are able, the methods of Nature, we are sure to do better work than we can hope to by any other

means. We may not master all her little tricks of beauty in the arrangement of leaf or flower, but we can try to do so.

In decorating a dinner-table, a great mistake is made in scattering the flowers used over a large portion of its surface, as is frequently done. It may be custom to do this—"the style," as people say—but it is not in harmony with artistic taste. It weakens the effect. Confine the floral display to one place on the table, and you have a central bit of color and beauty which dominates, and pleases the eye. But scatter flowers here and there about this central point, and the eye is confused and bewildered by the show. There is no place in particular to concentrate and hold attention. It is "too much of a good thing," a veritable "embarrassment of riches." But confine the flowers to the centre of the table, and the eye delights to linger on it. It seems the pivotal point of color about which the various accessories of beauty at the banquet revolve.

The effect produced by the use of flowers on the table is greatly heightened or marred by the vessels in which they are placed. There should be a harmony, not only of color, but of form. A rose is always beautiful, but it seems much more so when displayed in a pretty bowl than it does in a vase that forces it to assume an unnatural position. A lily is

charming in a vase of crystal, but put it in a bowl of the rarest old blue china and it would appeal to you for pity rather than admiration. Carnations are extremely effective in slender vases that enable them to keep a natural position, but put them in a bowl that would admirably suit the rose, and they would take on a most dejected appearance. It is impossible to lay down any rule regarding the selection of vases or bowls for particular flowers, but it is well to study the effect of them in various receptacles, and from this one will soon learn which flowers to use in this or that vase or bowl. He will find that there is a harmony in form and color which it will be well to bear in mind in decorating the table or the mantel. Aim, always, to give each flower such a vessel as will allow it to retain its natural position to the greatest possible extent. If this is done, one great step in the direction of success is taken.

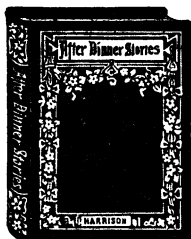
I have frequently spoken of letting flowers arrange themselves. This they are perfectly able to do, if given the chance. Drop them into the bowl or vase provided for them, give it a shake, and in nine cases out of ten they will fall into positions more natural, therefore more graceful than those in which you could place them if you were to work at them for a week. Any one who has ever tried to "arrange" sweet peas, and failed, will appreciate the truth of

this statement. But just drop the dainty things into a vase, and straightway they dispose themselves in a manner that delights you, though it vexes you somewhat to see them taking on so easily the charm you had sought to give them.

NOTE.—Since the first edition of this book was issued, the attention of the writer has been called to an insecticide of unusual efficiency, which can be prepared with very little trouble at a slight expense, and without making it necessary to send away for material from which to prepare it, as one almost always has to do where proprietary insecticides are used. It is made from the Ivory soap of daily use in the household. Shave a quarter of a pound into thin pieces, and pour water over it. Set them on the stove to dissolve. When liquefied add five gallons of water, and apply the infusion to your plants, either by dipping or syringing. Be sure that it gets to every part of them. This will kill or drive away every aphid, and it will not injure your plants in the least. It is excellent for use on roses in the garden—far superior to Hellebore in fact—and one need not fear injuring either foliage or flowers as we are quite likely to do if we make use of Paris green or

an emulsion of kerosene. It costs next to nothing, is pleasant to use, is harmless, and exceedingly effective, is always at hand, and this combination of good qualities makes it an ideal insecticide.

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Can you name the coldest place in the United States or tell what year had 445 days? Do you know how soon the coal fields of the world are likely to be exhausted, or how the speed of a moving train may be told? What should you do first if you got a cinder in your eye, or your neighbor's baby swallowed a pin? This unique, up-to-date book answers thousands of just such interesting and useful questions.

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Most of us dislike to look up a mythological subject because of the time required. ¶ This book remedies that difficulty because in it can be found at a glance just what is wanted. ¶ It is comprehensive, convenient, condensed, and the information is presented in such an interesting manner that when once read it will always be remembered. ¶ A distinctive feature of the book is the pronunciation of the proper names, something found in few other works.

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By John Harrison

The dinner itself may be ever so good, and yet prove a failure if there is no mirth to enliven the company. ¶ Nothing adds so much zest to an occasion of this kind as a good story well told. ¶ Here are hundreds of the latest, best, brightest, and most catchy stories, all of them short and pithy, and so easy to remember that anyone can tell them successfully. ¶ There are also a number of selected toasts suitable to all occasions.

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By William Pittenger

There is no greater ability than the power of skillful and forcible debate, and no accomplishment more readily acquired if the person is properly directed. ¶ In this little volume are directions for organizing and conducting debating societies and practical suggestions for all who desire to discuss questions in public. ¶ There is also a list of over 200 questions for debate, with arguments both affirmative and negative.

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Few persons can punctuate properly: to avoid mistakes many do not punctuate at all. ¶ A perusal of this book will remove all difficulties and make all points clear. ¶ The rules are plainly stated and freely illustrated, thus furnishing a most useful volume. ¶ The author is everywhere recognized as the leading authority upon the subject, and what he has to say is practical, concise, and comprehensive.

ORATORY

By Henry Ward Beecher

Few men ever enjoyed a wider experience or achieved a higher reputation in public speaking than Mr. Beecher. ¶ What he has to say on this subject was born of experience, and his own inimitable style was at once both statement and illustration of his theme. ¶ This volume is a unique and masterly treatise on the fundamental principles of true oratory.

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Some people are accused of talking too much. But no one is ever taken to task for talking too well.

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AS A FINE ART

By Ernest Legouvé

The ability to read aloud well, whether at the fireside or on the public platform, is a fine art.

¶ The directions and suggestions contained in this work of standard authority will go far toward the attainment of this charming accomplishment. ¶ The work is especially recommended to teachers and others interested in the instruction of public school pupils.

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By Dean Rivers

Conundrums sharpen our wits and lead us to think quickly. ¶ They are also a source of infinite amusement and pleasure, whiling away tedious hours and putting everyone in good humor. ¶ This book contains an excellent collection of over a thousand of the latest, brightest, and most up-to-date conundrums, to which are added many Biblical, poetical, and French conundrums.

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By Ellis Stanyon

There is no more delightful form of entertainment than that afforded by the performances of a magician. ¶ Mysterious as these performances appear, they may be very readily learned if carefully explained. ¶ This book embraces full and detailed descriptions of all the well known tricks with coins, handkerchiefs, hats, flowers, and cards, together with a number of novelties not previously produced or explained. ¶ Fully illustrated.

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By Edward H. Eldridge, A. M.

There is no more popular or interesting form of entertainment than hypnotic exhibitions, and everyone would like to know how to hypnotize. ¶ By following the simple and concise instructions contained in this complete manual anyone may, with a little practice, readily learn how to exercise this unique and strange power.

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Twenty-third Edition

"According to Cavendish" is now almost as familiar an expression as "according to Hoyle." ¶ No whist player, whether a novice or an expert, can afford to be without the aid and support of Cavendish. No household in which the game is played is complete without a copy of this book. ¶ This edition contains all of the matter found in the English publication and at one-fourth the cost.

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By Helen E Hollister

"What shall we do to amuse ourselves and our friends?" is a question frequently propounded on rainy days and long winter evenings. ¶ This volume most happily answers this question, as it contains a splendid collection of all kinds of games for amusement, entertainment, and instruction. ¶ The games are adapted to both old and young, and all classes will find them both profitable and interesting.

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The Sun and His Family

By Julia MacNair Wright

Can you tell what causes day and night, seasons and years, tides and eclipses? Why is the sky blue and Mars red? What are meteors and shooting stars? ¶ These and a thousand other questions are answered in a most fascinating way in this highly interesting volume. Few books contain as much valuable material so pleasantly packed in so small a space. ¶ Illustrated.

BOTANY :

The Story of Plant Life

By Julia MacNair Wright

The scientific study of Botany made as interesting as a fairy tale. ¶ It is better reading than such tales, because of the profit. ¶ Each chapter is devoted to the month of the year in which plants of that month are in evidence. Not only is the subject treated with accuracy, but there is given much practical information as to the care and treatment of plants and flowers. ¶ Illustrated.

FLOWERS:

How to Grow Them

By Eben E. Rexford

Every woman loves flowers, but few succeed in growing them. With the help so clearly given in this book no one need fail. ¶ It treats mainly of indoor flowers and plants—those for window gardening; all about their selection, care, soil, air, light, warmth, etc. ¶ The chapter on table decoration alone is worth the price of the book. ¶ While the subject of flowers is quite thoroughly covered, the style used is plain, simple, and free from all technicalities.

DANCING

By Marguerite Wilson

A complete instructor, beginning with the first positions and steps and leading up to the square and round dances. ¶ It contains a full list of calls for all of the square dances, and the appropriate music for each figure, the etiquette of the dances, and 100 figures for the german. ¶ It is unusually well illustrated by a large number of original drawings. ¶ Without doubt the best book on the subject.

ASTROLOGY

By M. M. Macgregor

If you wish to obtain a horoscope of your entire life, or if you would like to know in what business or profession you will best succeed, what friends you should make, whom you should marry, the kind of a person to choose for a business partner, or the time of the month in which to begin an enterprise, you will find these and hundreds of other vital questions solved in this book by the science of Astrology.

GRAPHOLOGY:

How to Read Character from Handwriting

By Clifford Howard

Do you know that every time you write five or six lines you furnish a complete record of your character? Anyone who understands Graphology can tell by simply examining your handwriting just what sort of a person you are. ¶ There is no method of character reading that is more interesting, more trustworthy, and more valuable than that of Graphology, and it is the aim of this volume to enable anyone to become a master of this most fascinating art.

PRACTICAL PALMISTRY

By Henry Frith

The hand shows the man, but many who believe in palmistry have found no ready access to its principles. ¶ This little guide to it is complete, trustworthy, and yet simple in arrangement. ¶ With this book and a little practice anyone may read character surely, recall past events, and forecast the future. ¶ Fully illustrated.

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What Every Citizen Should Know

By George Lewis

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LAW, AND HOW TO KEEP OUT OF IT

By Paschal H. Coggins, Esq.

Most legal difficulties arise from ignorance of the minor points of law. ¶ This book furnishes to the busy man and woman knowledge of just such points as are most likely to arise in every-day affairs, and thus protects them against mental worry and financial loss. ¶ Not only is this information liberally given, but every point is so explained and illustrated that the reader will not only understand the law on the subject, but cannot fail to remember it.

CLASSICAL DICTIONARY

By Edward S. Ellis, A. M.

All literature abounds in classical allusions, but many do not understand their meaning. ¶ The force of an argument or the beauty of an illustration is therefore often lost. ¶ To avoid this, everyone should have at hand a complete dictionary such as this. ¶ It contains all the classical allusions worth knowing, and they are so ready of access as to require little or no time in looking up.

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By Edward S. Ellis, A. M.

Plutarch was the most famous biographer and one of the most delightful essayists who ever lived. ¶ To him we are indebted for an intimate acquaintance with many famous Greeks and Romans who made history and who still live. ¶ This book is a condensed form of the original "Lives." ¶ All the personages likely to be inquired about are mentioned, and what is told of them is just what one most wishes to know.

GOLF

By Horace Hutchinson

Golf, to-day, is a synonym for "out doors" to thousands of busy people.

¶ This standard book gives a complete history of the game, together with instructions for the selection of implements, and full directions for playing. ¶ Much interesting information relating to celebrated links and famous players is presented. ¶ A convenient glossary, together with the rules and etiquette of the game, is appended.

FIRST AID TO THE INJURED

By F. J. Warwick

Lives can be saved and much suffering prevented by the study of this work. ¶ What to do in all kinds of accidents, as well as in the first stages of illness, with a brief and simple statement of the human anatomy, constitute the chief features of the book. ¶ It is written in a plain and simple way, easily understood, and its value is further increased by its copious illustrations.

NURSING

By S. Virginia Levis

Every household has its serious illnesses, but few families can afford a professional nurse. ¶ This book is the next best thing, better in some respects, as anyone can easily follow its instructions, and when once learned they are always available. ¶ The fullest particulars are given for the care of the sick in all the simple as well as the serious ailments of life.

ELECTRICITY

By George L. Fowler

An interesting and thoroughly reliable presentation of the subject for the amateur or skilled electrician. ¶ If you wish to install an electric door-bell, construct a telephone, wire a house, or understand the workings of a dynamo, this volume will furnish the required information. ¶ A practical book of inestimable value to everyone.

PHYSIOGNOMY

By Leila Lomax

How can we judge whether a man may be trusted to handle money for us? ¶ How can a woman analyze a man who would marry her? ¶ Partly by words, partly by voice, partly by reputation, but more than all by looks—the shape of the head, the set of the jaw, the line of the mouth, the glance of the eye. ¶ Physiognomy as explained in this book shows clearly how to read character with every point explained by illustrations and photographs.

THE DOG

By John Maxtee

Every dog owner should know how to choose a dog, how to house and feed him, how to exercise and train him, and how to get him back to condition if he is out of sorts. ¶ All the essentials of dog keeping are here, from kennel to show-bench, and from biscuits to flea-bane. ¶ For the owner who wants a cheap but expert dog encyclopedia in little space this is the only book.

HEALTH: HOW TO GET AND KEEP IT

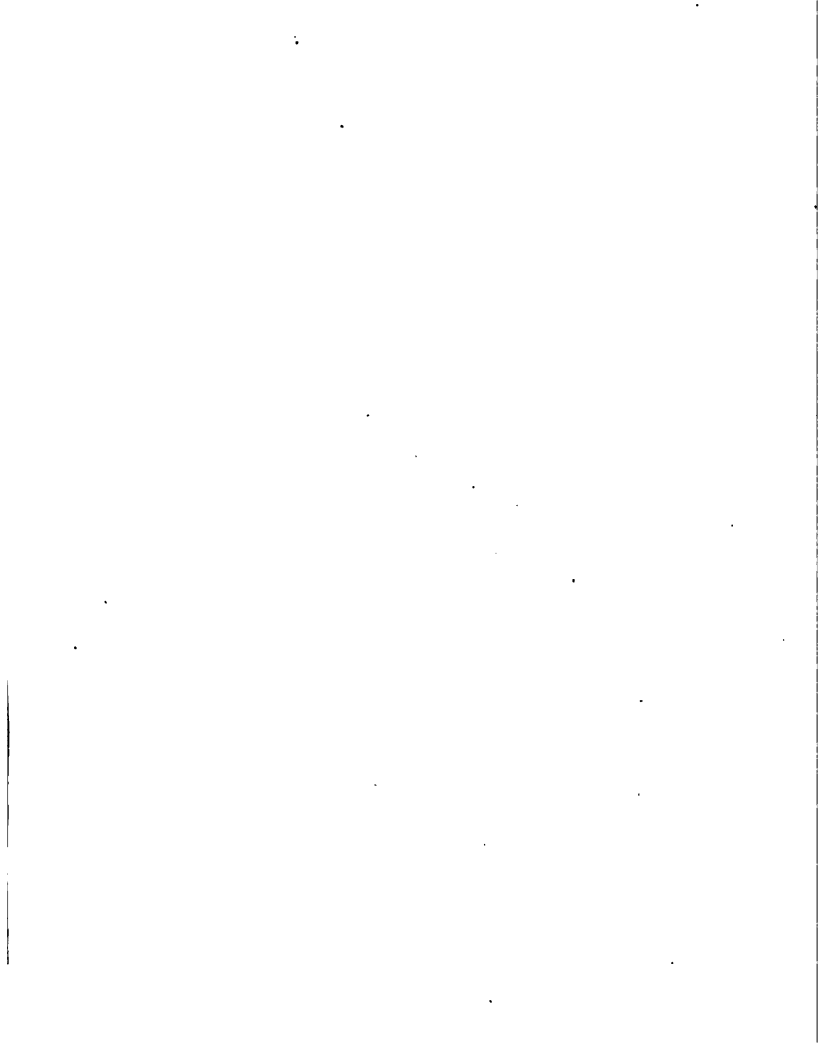
By Walter V. Woods, M. D.

What is the use of dumb bells every morning and rigid dieting three times a day when there is an open drain in the cellar? ¶ Why shield the baby from draughts and then feed him on infected milk? ¶ Do you know the things that make for Health?—proper exercise, rest, bathing, eating, ventilation, and good plumbing—these are only a few of them. ¶ This book tells what Health is, what makes it, what hurts it, and how to get and how to keep it.

CURIOUS FACTS

By Clifford Howard

Why do you raise your hat to a lady? and why are you always careful to offer the right hand and not the left? ¶ Is there a good reason for the buttons on the sleeve of your coat? ¶ How did your family name originate? ¶ Is it true that it takes nine tailors to make a man, and if so, why, forsooth? ¶ These and scores of equally interesting questions find answers here. Open it at any page and you will see something you have wanted to know all your life.





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Flowers, how to grow them : a pract

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